Resumen

Las plagas agrícolas son una de las amenazas más grandes con las que se enfrentan los principales países productores y exportadores de cultivos agrícolas. Dentro de estas plagas, los coleópteros y lepidópteros son los principales responsables en las pérdidas postcosecha en varios países, entre los que se encuentran la República Argentina. Estos insectos causan pérdidas que rondan el 10%, pero en algunos casos puede superar el 30%.

Para poder hacer frente a estos daños se ha recurrido a varios métodos, entre los que se puede mencionar al control químico como uno de los más utilizados. Sin embargo, los efectos nocivos asociados al uso indebido y excesivo, han derivado en el estudio de métodos alternativos de control, sin efectos adversos. Por este motivo, los productos de origen vegetal surgieron como alternativas para el control de plagas. La alta complejidad química de estos productos permite su aplicación por diferentes métodos (repelencia, toxicidad por contacto o fumigante, efectos en el desarrollo, reproducción y crecimiento, etc.), causando efectos letales y subletales en las plagas, presumiblemente mediante efectos neurotóxicos.

En esta tesis se evaluaron los efectos letales (exposición a vapores, contacto con superficies tratadas y aplicaciones tópicas) y subletales (repelencia) de los aceites esenciales (AEs) y extractos vegetales derivados de plantas autóctonas:

Aloysia polystachya y *A. citriodora* (Verbenaceae), *Schinus areira* (Anacardiaceae) y *Limonium brasiliense* (Plumbaginaceae); en adultos de *Rhyzopertha dominica*.

Todos los AEs produjeron repelencia, pero su efecto se disipó con el tiempo; llegando a producir un efecto atrayente, con el AE de frutos de *S. areira*, en la última etapa del análisis. Además, todos los AEs produjeron toxicidad por contacto y por exposición a vapores.

En cambio, los extractos difirieron en su toxicidad, principalmente por la polaridad del solvente y el método de aplicación. Es así que los extractos, de la primer etapa de extracción, de *L. brasiliense* solo produjeron toxicidad fumigante. Mientras que los extractos de *S. areira*, obtenidos con solventes de diferente polaridad, solo produjeron toxicidad por contacto, hallándose una pérdida en la actividad a medida que se avanzó en el fraccionamiento bioguiado.

Por otro lado, se evaluó el efecto anorexigénico de neuropéptidos análogos, pertenecientes al grupo de las sulfaquininas. Estos péptidos tienen secuencias conservadas **[DY(SO_3H)GHMRFa]**, que fueron modificadas mediante sustituciones de residuos de aminoácidos.

Los resultados demuestran que el residuo de tirosina (**Y**) y el grupo sulfato (**SO_3H**) unido a este aminoácido, no son imprescindibles para el funcionamiento de los péptidos. En cambio, ciertos residuos de la secuencia de aminoácidos son muy

importantes y su modificación deriva en la inactivación o en el efecto antagónico del péptido.

Tanto los productos de origen vegetal, como los neuropéptidos, constituyen herramientas importantes para el manejo integrado de plagas y para el estudio de la fisiología de los insectos.

Abstract

Agricultural pests are one of the most important threats that face producing and exporting countries of agricultural crops. Within these pests, Coleoptera and Lepidoptera are responsible for post-harvest losses in several countries, including Argentina. These insects cause losses of around 10%, but in some cases can exceed 30%.

To face these losses, different methods have been used, among which we can mention to chemical control as one of the most applied. However, harmful effects associated with the misuse and excessive application, have led to the study of alternative methods of control, without adverse effects. For this reason, natural products of plant origin are nowadays, important alternatives for pest control. The high chemical complexity of these products allow its implementation through different methods (repellency, contact or fumigant toxicity, effects on development, reproduction and growth, etc.), causing lethal and sublethal effects, presumably by neurotoxic effects.

In this work we evaluated the toxic (exposure to vapors, to treated surfaces and topical applications) and sublethal effects (repellency) of essential oils (EOs) and plant extracts from indigenous plants: *Aloysia polystachya* and *A. citriodora* (Verbenaceae), *Schinus areira* (Anacardiaceae) and *Limonium brasiliense* (Plumbaginaceae) against adults of *Rhyzopertha dominica*.

All EOs showed repellent effects, but the repellency decreased during the analysis, reaching an attractant effect with the EO from fruits of *S. areira*, during the last period. In addition, all EOs showed contact and fumigant toxicity.

On the other hand, the extracts differed in their toxicity, mainly by the polarity of the solvent and the method of application. Thus, extracts from the first extraction stage of *L. brasiliense*, showed only fumigant toxicity. While extracts of *S. areira*, extracted with solvents of different polarity, showed only contact toxicity. And there was a loss of the activity with the fractions obtained through the bio-guided fractionation.

Furthermore, the anorexigenic effect was evaluated with analogs of neuropeptide belonging to the group of sulfakinins. These peptides have a conserved sequence [**DY(SO_3H)GHMRFa**], which was modified by substitutions of amino acid residues.

The results showed that the tyrosine residue (**Y**) and the sulfate group (**SO_3H**) are not essential for the function of peptides. Instead, certain residues of the amino acid sequence are very important and their modification derives in the inactivation or antagonistic effects of the peptide.

Both, products of plant origin and neuropeptides, are important tools for integrated pest management and to understand the physiology of insects.

Capítulo 6: Bibliografía

Bibliografía

- Abbott W.S. 1925. A method for computing the effectiveness of an insecticide. Journal of Economic Entomology, 18(2): 265-267.

- Abdallah S.A.H., Badawy H.M.A., Barakat A.A. & Soliman M.M.M. 2006. Toxicological and phytochemical studies of wild plant, *Halocnemon strobilacium* crude extracts and their components against *Aphis craccivora* Koch. En: IX Arab Congress of Plant Protection, Damascus, Syria. Ex 3. E-150.

- Abdel-Sattar E., Zaitoun A.A., Farag M.A., El Gayed S.H. & Harraz F.M.H. 2009. Chemical composition, insecticidal and insect repellent activity of *Schinus molle* L. leaf and fruit essential oils against *Trogoderma granarium* and *Tribolium castaneum*. Natural Product Research, 1-10.

- Aggarwal K.K., Tripathi A.K., Prajapati V. & Kumar S. 2001a. Toxicity of 1,8-cineole against three species of stored product coleopterans. Insect Science and its Applications, 21: 155-160.

- Aggarwal K.K.,Tripathi A.K, Ahmad A., Prajapati V., Verma N. & Kumar S. 2001b.Toxicity of l-menthol and derivates against four storage insects. Insect Science and its Application, 21 (3): 229-235.

- Agrawal P.K. 1989. Carbon-13 NMR of flavonoids. Elsevier, New York. 564pp.

- Aguado M.I., Nuñez M.B., Dudik H.N., Bela A., Raisman J.S. & Sansberro P. 2006. Diseño de comprimidos de extracto de *Aloysia polystachya* por compresión directa. Acta Farmacológica Bonaerense, 25(2): 225-230.

- Ahmad I., Mehmood Z. & Mohammad F. 1998. Screening of some Indian medicinal plants for their antimicrobial properties. Journal of Ethnopharmacology, 62: 183–193.

- Alonso J. & Desmarchelier C. 2005. Plantas medicinales autóctonas de la Argentina. Editorial L.O.L.A., Buenos Aires. 88-92 pp.

- Alonso Paz E. & Bassagoda M.J. 2003. Relevamiento de la flora y comunidades vegetales del cerro verde, Rocha, Uruguay. Comunicaciones Botánicas del Museo de Historia Natural de Montevideo. 127: 1-19.

- Al-Zubaidi F.S. 2006. Effects of unicorn plant *Ibicella lutea* (Staph.) van Eslet. (Martyneaceae) phenolic compounds on some biological aspects of *Bemisia tabaci* (Genn.) En: IX Arab Congress of Plant Protection, Damascus, Syria. Ex 2. E-150.

- Argyropoulou C., Daferera D., Tarantilis P.A., Fasseas C. & Polissiou M. 2007. Chemical composition of the essential oil from leaves of *Lippia citriodora* H.B.K (Verbenaceae) at two developmental stages. Biochemical Systematics and Ecology, 35: 831-837.

- Arthur F.H., Bautista R.C. & Siebenmorgen T.J. 2007. Influence of growing location and cultivar on *Rhyzopertha dominica* (Coleoptera: Bostrichidae) and *Sitophilus oryzae* (Coleoptera: Curculionidae) infestation of rough rice. Insect Science, 14: 231-239.

- Ascari J., Takahashi J.A., Boaventura M.A.D. 2010. Phytochemical and biological investigations of *Caryocar brasiliense* Camb. Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas, 9 (1): 20-28.

- Audsley, N. & Weaver R.J. 2009. Neuropeptides associated with the regulation of feeding in insects. General and comparative endocrinology, 162: 93-104.

- Ávila Murillo M.C., Cuca Suarez M.E., Cerón Salamanca J.A. 2012.Composición química y actividad insecticida sobre *Spodoptera frugiperda* de dos especímenes de la especie *Piper subtomentosum* (piperaceae). En: III Congreso de Química de Productos Naturales. Punta Arena, Chile. 48pp.

- Avilés Pacheco R., Sotomayor Sánchez E., Sánchez G.G. & Martínez Suárez Y. 2008. Ciclo biológico de *Rhyzopertha dominica* (F.) en semillas de arroz sometidas a cuatro temperaturas. Fitosanidad, 12 (4): 221-225.

- Azeredo H.M.C. 2009. Betalains: properties, sources, applications, and stability–a review. International Journal of Food Science and Technology, 44: 2365–2376.

- Babendreier D., Bigler F. & Kuhlmann U. 2006. Current status and constraints in the assessment of non-target effects. En: Bigler F, Babendreier D. & Kuhlmann U. 2006. Environmental impact of invertebrates for biological control of arthropods: methods and risk assessment. Ed. CABI publishing, UK. 315pp.

- Bakkali F., Averbeck S., Averbeck D. & Idaomar M. 2008. Biological effects of essential oils-A review. Food and Chemical Toxicology, 46: 446-475.

- Bandoni A.L., Mediondo M.E, Rondina R.V.D. & Coussio J.D. 1972. Survey of argentine medicinal plants in folklore and phytochemical screening. Lloydia, 35(1): 69-80.

- Bandoni, A.L. 2002. Los recursos vegetales aromáticos en Latinoamérica. CYTEP. 417pp.

- Barkley F.A. 1957. A study of Schinus L. Lilloa, 28: 5-110.

- Bekele A.J., Obeng-ofori D. & Hassanali A. 1996. Evaluation of *Ocimum suave* (Wild) as a source of repellents, toxicants and protectans in storage against three stored product insect pests. Journal of Pest Management, 42: 139-142.

- Bekele J. & Hassanali A. 2001. Blend effects in the toxicity of the essential oil constituents of *Ocimum kilimandscharicum* and *Ocimum kenyense* (Labiatae) on two post-harvest insect pests. Phytochemistry, 57: 385-391.

- Bello R., Barrachina M.D., Moreno L., Primo-Yúfera E. & Esplugues J. 1996. Effects on arterial blood pressure of the methanol and dichloromethanol extracts from *Schinus molle* L. in rats. Phytotherapy Research, 10: 634-635.

- Bentley P.H., Kenner G.W. & Sheppard R.C. 1966. Human gastrin: isolation, structure and synthesis. Nature, 209: 583-585.

- Benzi V., Stefanazzi N. & Ferrero A.A. 2009. Biological activity of essential oils froms leaves and fruits of pepper tree (Schinus molle L.) to control rice weevil (Sitophilus oryzae L.) Chilean Journal of Agricultural research, 69(2): 154-159.

- Berardi A. 2010. Etnofarmacología gastrointestinal de plantas medicinales argentinas del género *Aloysia*, familia Verbenaceae: mecanismos de acción y relación con los principios activos. Tesis de magister en Plantas Medicinales. Universidad Nacional de La Plata. 78pp.

- Bernhard R.A., Shibamoto T., Yamaguchi K. & White E. 1983. The volatile constituents of *Schinus molle* L. Journal of Agricultural Chemistry, 31: 463-466.

- Bertaccini G. 1976. Active polypeptides of nonmammalian origin, Pharmacological Review, 28: 127-117.

- Bicalho K.U., Terezan A.P., Martins D.C., Garcia Freitas T., Fernandes J.B., Fernandes da Silva M.F.G., Vieira P.C., Pagnocca F.C. & Côrrea Bueno O.O. 2012. Evaluation of the Toxicity of Virola sebifera Crude Extracts, Fractions and Isolated Compounds on the Nest of Leaf-Cutting Ants. Psyche, vol. 2012. Article ID 785424, 7 pages. doi:10.1155/2012/785424.

- Bloch Q.M.C., Aprille J.R. & Lewis S.M. 1998. Female role in sperm storage in the red flour beetle, *Tribolium castaneum*. Comparative Biochemistry and Physiology-Part A: Molecular & Integrative Physiology, 120:641-647.

- Bonzani N.E., Filippa E.M. & Barboza G.E. 2003. Estudio anatómico comparativo de tallo de algunas especies de Verbenaceae. Anales del Instituto de Biología. Serie Botánica, 74(1): 31-45.

- Botta S.M. 1979. Las especies argentinas del género Aloysia (Verbenaceae). Darwiniana, 22: 67-108.

- Botta S.M. 1993. Aloysia. En: Cabrera A.L. (ed.) Flora de la provincia de Jujuy, colección instituto de tecnología agropecuaria, 13(9): 36-47.

- Brooks G.T. 1976. Penetration and distribution of insecticides. En: Wilkinson C.F. Insecticidal biochemistry and physiology. Plenum, New York. 3-58.

- Burkat A. 1979. Plumbaginaceae. Flora fanerógama Argentina, 6 (5a): 22-25.

- Burt S. 2004. Essential oils: Their antibacterial properties and potential applications in foods – A review. International Journal of Food Microbiology, 94: 223-253.

- Caballero García C. 2004. Efectos de Terpenoides Naturales y Hemisintéticos sobre *Leptinotarsa decemlineata* (Say) (Coleoptera:Chrysomelidae) y *Spodoptera exigüa* (Hübner) (Lepidoptera:Nocturnae). Tesis Doctoral Facultad de Ciencias Biológicas, Universidad Complutense de Madrid. Madrid, España. 119 pp.

- Cabanillas C.M., Lopez .L., Daniele G. & Zygadlo J.A. 2003. Essential oil composition of *Aloysia polystachya* (Griseb.) Moldenke under rust disease. Flavour and Fragrance Journal, 18: 446–448.

- Cabrera A.L. & Zardini E.M. 1993. Manual de la flora de los alrededores de Buenos Aires. 2° Ed. Acme S.A.I.C, Buenos Aires.

- Cadby P.A., Troy W.R., Middleton J.D. & Matthias G.H.V. 2002. Fragrances: are they safe? Flavour and Fragrance Journal, 17: 472-477.

- Campbell J.F. & Arthur F.H. 2007. Ecological implications for post harvest integrated pest management of grain and grain-based products. En: Koul O. & Cuperus G.W. Eds. Ecologically Based Integrated Pest Management. Oxfordshire, UK: CAB International. 406-431pp.

- Campuzano M., Tortoriello J., Fernández S., Wasowski C., Marder M., De Lima T.C. & Mora, S. 2006. The anxiolytic-like effects of *Aloysia polystachya* (Griseb.) Moldenke (Verbenaceae) in mice. J Ethnopharmacol. 105(3): 400-408.

- Cantrell C.L., Dayan F.E. & Duke S.O. 2012. Natural products as sources for new pesticides. Journal of Natural Products, 75: 1231-1242.

- Carnat A., Carnat A.P., Fraisse D. & Lamaison J.L. 1999. The aromatic and polyphenolic composition of lemon verbena tea. Fitoterapia, 70(1): 44-49.

- Casida J.E. & Quistad G.B. 1998. Golden age of insecticide research: Past, Present, or Future? Annual Review of Entomology, 43:1–16.

- Casini C. & Santajuliana M. 2008. Control de plagas en granos almacenados. Disponible en:www.cosechaypostcosecha.org/data/articulos/postcosecha/ControlPlagasGranosAlmacenados.asp

- Celsi & Monserrat, 2005. Guía de plantas- Fundación de Historia Natural Félix de Azara. Universidad Maimónides. Disponible en: procostas.org/cms/docs/Plantas_vasculares%20costeras.pdf

- Céspedes C.L., Avila J.G., Marin J.C., Domínguez M., Torres P. & Aranda E. 2006. Natural compounds as antioxidant and molting inhibitors can play a role as a model for search of new botanical pesticides. En: Rai M. & Carpinella M.A. 2006. Naturally occurring bioactive compounds. Ed. Elsevier, Amsterdam, The Netherlands. 502 pp.

- Chanbang Y., Arthur F.H., Wilde G.E. & Throne J.E. 2007. Efficacy of diatomaceous earth and methoprene, alone and in combination, against *Rhyzopertha dominica* (F.) (Coleoptera: Bostrichidae) in rough rice. Journal of Stored Products Research, 43: 396-401.

- Changmann Y., Shin-Ho K., Jeong-Oh Y., Doo-Jin N., Pandiyan I.G. & Gil-Hah K. 2009. Repellent activity of citrus oils against the cockroaches *Blattella germanica*, *Periplaneta americana* and *P. fuliginosa*. Journal of Pest Science, 34(2): 77–88.

- Chávez M.G.C. 2007. Hidrodestilación de aceites esenciales: modelado y caracterización. Tesis doctor en química, Universidad de Valladolid, Valladolid. 304 pp.

- Chermenskaya T.D., Stepanycheva E.A., Shchenikova A.V. & Chakaeva A.S. 2010. Insect acaricidal and deterrent activities of extracts of Kyrgyzstan plants against three agricultural pests. Industrial Crops and Products, 32: 157–163.

- Chirino M., Cariac M.J. & Ferrero A.A. 2001. Actividad insecticida de extractos crudos de drupas de *Schinus molle* L. (Anacardiaceae) sobre larvas neonatas de *Cydia pomonella* L. (Lepidoptera: Tortricidae). Boletín de la Sanidad Vegetal-Plagas, 27: 305-314.

- Chung J.S., Goldsworthy G.J. & Coast G.M. 1994. Haemolymph and tissue titers of achetakinins in the house cricket *Acheta domesticus*: effect of starvation and dehydration. Journal of Experimental Biology, 193: 307-319.

- Clevenger J.F. 1928. Apparatus for the determination of volatile oil. Journal of the American Pharmacists Association, 17: 346.

- Coelho de Souza G.P. & Elisabetsky E.1998. Ethnobotany and anticonvulsant properties of Lamiaceae from Rio Grande Do Sul (Brazil). Royal botanics garden Kew, Lamiales newsletter, 6: 1-18.

- Colazza S., Salerno S. & Wajnberg E. 1999. Volatile and contact chemicals released by *Nezara viridula* (Heteroptera: Pentatomidae) have kairomonal effect on the egg parasitoid *Trissolcua basalis* (Hymenoptera: Scelionidae) Biological Control, 16: 310-317.

- Collins J.C. Jr. 2007. Challenges and opportunities in crop production over the next decade. En: Ohkawa H., Miyagawa H. & Lee P.W. 2007. Pesticide Chemistry-crop protection, public health, environmental healthy. Wiley-VCH verlag GmbH & CO. 3-12pp.

- Cox P.D. 2004. Potential for using semiochemicals to protect stored products from insect infestation. Journal of Stored Product Research, 40: 1-25.

- Cseke L.J., Kirakosyan A., Kaufman P.B., Warber S.L., Duke J.A. & Brielmann H.L. 2006. CRC Press, Boca Ratón. FL. 569 pp.

- Dal Bello G. & Padín S. 2006. Olfatómetro simpla para evaluar la actividad biológica de aleloquímicos vegetales en *Tribolium castaneum* Herbst (Coleoptera:Tenebrionidae). Agrociencia, X(2): 23-26.

- Davis A.L., Cai Y., Davies A.P., & Lewis J.R. 1996a. ^{1}H and ^{13}C NMR assignaments of some green tea polyphenols. Magnetic Resonance in Chemistry, 34: 887-890.

- Davis N.T., Homberg U., Teal P.E., Alstein M., Agricola H.J. & Hildebrand, J.G. 1996b. Neuroanatomy and immunocytochemistry of the median neuroendocrine cells of the subesophageal ganglion of the tobacco hawkmoth, *Manduca sexta*: immunoreactivities to PBAN and other neuropeptides. Microscopy Research and Technic, 35: 201-229.

- De Paiva S.R., Lima L.A., Figueiredo M.R. & Kaplan M.A. C. 2004. Plumbagin quantification in roots of *Plumbago scandens* L. obtained by different extraction techniques. Annals of the Brazilian Academy of Sciences, 76(3): 499-504.

- De la Puebla P.B., López-Colón J.I. & Baena M. 2007. Los Bostrichidae Latreille, 1802 de la fauna íbero-balear (Coleoptera). Heteropterus Revista de Entomología, 7(2):147-227.

- De Los Mozos Pascual M. 1997. Plagas de los productos almacenados. Boletín de la Sociedad Entomológica Argentina, 20: 93-109.

- Dellacassa E. & Bandoni A.L. 2003. Hierbaluisa *Aloysia citriodora* Palau. Revista de Fitoterapia, 3(1): 19-25.

- Dent D. Insect pest management. 2000. 2nd ed. CABI publishing, Wallinford, UK. 410pp.

- De Paiva S.R., Lima L.A., Figueiredo M.R. & Kaplan M.A.C. 2004. Plumbagin quantification in roots of Plumbago scandens L. obtained by different extraction techniques. Annals of the Brazilian Academy of Sciences, 76(3): 499-504.

- Descamps, L.R. 2002. Factores que afectan el control de las plagas de los granos almacenados en e área de influencia del Puerto de Ingeniero White, Bahía Blanca, Buenos Aires, Argentina. Tesis presentada para optar al título de Magíster en Ciencias Agrarias. Dpto. de Agronomía. Universida Nacional del Sur. Bs. As. 103 pp.

- Descamps L.R. 2007. Actividad biológica de extractos vegetales y aceites esenciales de *Schinus molle* var. Areira (Anacardiaceae) en *Tribolium castaneum* Herbst. (Insecta, Coleoptera, Tenebrionidae), plaga de grano almacenado. Tesis Doctor en Agronomía, Universidad Nacional del Sur, Bahía Blanca, Argentina.147pp.

- Descamps L.R., Stefanazzi N., Sánchez Chopa C. & Ferrero A.A. 2008. Actividad biológica de extractos vegetales de *Schinus molle* var. *areira* (Anacardiaceae) en *Tribolium castaneum* Herbst. (Insecta, Coleoptera, Tenebrionidae), plaga de grano almacenado. Boletín de la Sanidad Vegetal-Plagas, 34: 595-605.

- Descamps L. R., Sánchez Chopa C. & Ferrero A.A. 2011. Activity of *Schinus areira* (Anacardiaceae) essential oils against the grain storage pest *Tribolium castaneum*. Natural Product Communications, 6 (6): 887-891.

- Deveci O., Sukan A., Tuzun N. & Kocabas E.H. 2010. Chemical composition, repellent and antimicrobial activity of *Schinus molle* L. Journal of Medicinal Plants Research, 4(21): 2211-2216.

- Devine G.J. & Furlong M.J. 2007. Insecticide use: Contexts and ecological consequences. Agriculture and Human Values, 24: 281–306.

- Dewick P.M. 2002. Medicinal natural products: a biosynthetic approach. Second Edition. John Wiley & Sons Ltd, Gran Bretaña. 507 pp.

- Di Leo Lira P., van Baren C.M., Retta D., Bandoni A.L, Gil A., Gattuso M. & Gattuso S. 2008. Characterization of Lemon Verbena (*Aloysia citriodora* Palau) from Argentina by the Essential Oil. Journal of Essential Oil Research, 20: 350-353.

- Di Pascua R., Betts G., Hoskins N., Edwards M., Ercolini D. & Mauriello G. 2007. Membrane toxicity of antimicrobial compounds from essential oils. Journal of Agricultural and Food Chemistry, 55(12): 4863-4970.

- Didry N., Dubrevil L. & Pinkas M. 1994. Activity of anthraquinonic and naphthoquinonic compounds on oral bacteria. Die Pharmazie, 49: 681-683.

- Dickinson P.S., Stevens J.S., Rus S., Brennan H.R., Goiney C.C., Smith C.M., Li L., Towle D.W. & Christie A.E. 2007. Identification and cardiotropic actions of sulfakinin peptides in the American lobster *Homarus americanus*. The Journal of Experimental Biology, 210: 2278-2289.

- Dikshit A., Naqvi A.A. & Husain A. 1986. *Schinus molle*: a New Source of Natural Fungitoxicant. Applied and Environmental Microbiology, 51(5): 1085-1088.

- Dimitri M.J. & Orfila E.N. 2000. Tratado de morfología y sistemática vegetal. Ed. Acme S.A.I.C, Buenos Aires. 489pp.

- Dockray G.J. 1989. Gastrin, cholecystokinin (CCK), and the leucosulfakinins. Biology Bulletin, 177: 195-197.

- Domínguez X.A., Carmona F.F. & Venegas R.B. 1971. Lignoceric acid and other compounds of *Schinus molles*. Phytochemistry, 10: 1687.

- Downer K.E., Haselton A.T., Nachman R.J. & Stoffolano J.G. Jr. 2007. Insect satiety: sulfakinin localization and the effects of drosulfakinin on protein and carbohydrate ingestion in the blow fly *Phormia regina* (Diptera: Calliphoridae). Journal of Insect Physiology, 53: 106-112.

- Dubey N.K., Srivastava B. & Kumar A. 2008. Current status of plant products as botanical pesticides in storage pest management. Journal of Biopesticides, 1: 182-186.

- Duke J.A., Bogenschutz-Godwin M.J. & Ottesen A.R. 2009. Duke's handbook of medicinal plants of Latin America. CRC Press, Inc., Boca Raton, FL. 962 pp.

- Dunkel F.V. & Sears L.J. 1998. Fumigant properties of physical preparations from mountain big sagebrush, *Artemisia tridentate* Nutt. Spp. Vaseyana (Rydb.) beetle for stored grain insects. Journal of Stored Products Research, 34: 307-321.

- Duve H., Rehfeld J.F., East P. & Thorpe A. 1994. Localization of sulfakinin neuronal pathways in the blowfly *Calliphora vomitoria*. Cell and Tissue Research, 275: 177-186.

- Duve H., Thorpe A., Scott A.G.,Johnsen A.H., Rehfeld J.F., Hine E. & Eaast P.D. 1995. The sulfakinins of the blowfly *Calliphora vomitoria* peptide isolation, gene cloning and expression studies. European Journal of Biochemistry, 232: 633-640.

- East P.D., Hales D.F. & Cooper P.D. 1997. Distribution of sulfakinin-like peptides in the central and sympathetic nervous system of the American cockroach, *Periplaneta americana* (L.) and the field cricket, *Teleogryllus commodus* (Walker). Tissue Cell, 29: 347-354.

- Edde P.A. 2012. A review of the biology and control of *Rhyzopertha dominica* (F.) the lesser grain borer. Journal of Stored Products Research, 48: 1-18.

- Egg A.B. 1999. Diccionario enciclopédico de plantas útiles del Perú. Centro de Estudios Regionales Andinos Bartolome de Las Casas, Cuzco. 550 pp.

- Enan E.E. 2001. Insecticidal activity of essential oils: octopaminergic site of action. Comparative Biochemistry and Physiology C, 130: 325-337.

- Fang R., Jiang C.H., Wang X.Y., Zhang H.M., Liu Z.L., Zhou L., Du S.S. & Deng Z.W. 2010. Insecticidal activity of essential oil of *Carum carvi* fruits from China and its main components against two grain storage insects. Molecules, 15: 9391-9402.

- FAO (Food and Agriculture Organisation). Crop prospects and food situation. 2010. N°4, 35pp. FAOSTAT On-line Statistical Service. En: http://faostat3.fao.org/home/index.html

- Feitosa C.M., Freitas R.M., Luz N.N.N., Bezerra M.Z.B. & Trevisan M.T.S. 2011. Acetylcholinesterase inhibition by somes promising Brazilian medicinal plants. Brazilian Journal of Biology, 71(3): 783-789.

- Feng W. & Zheng X. 2007. Essential oil to control *Alternaria alternate* in vitro and in vivo. Food Control, 18: 1126-1130.

- Ferrero A.A., Werdin González J.O. & Sánchez Chopa C. 2006. Biological activity of *Schinus molle* on *Triatoma infestans*. Fitoterapia, 77(5): 381-383.

- Ferrero A.A., Sánchez Chopa C., Werdin González J.O. & Alzogaray R.A. 2007. Repellence and toxicity of *Schinus molle* extracts on *Blattella germanica.* Fitoterapia, 78(4): 311-314.

- Fónagy A., Schoofs L., Proosl P., Van Damme J. & De Loof A. 1992. Isolation and primary structure of two sulfakinin-like peptides from the fleshfly, *Neobellieria bullata.* Comparative Biochemistry and Physiology, 103C: 135-142.

- Foottit R.G. & Adler P.H. 2009. Insect biodiversity: science and society. Eds. John Wiley and sons, New York. 656pp

- Foster S.P & Harris M.O. 1997. Behavioral manipulation methods for insect pest management. Annual Review of Entomology, 42: 123-146.

- Fuselli S.R., Garcia de la Rosa S.B., Eguaras M.J & Fritz R. 2008. Susceptibility of the Honeybee Bacterial Pathogen *Paenibacillus larvae* to Essential Oils Distilled from Exotic and Indigenous Argentinean Plants. Journal of Essential Oil Research, 20: 464-470.

- Gálvez Ranilla L., Kwon Y.I., Apostolidis E. & Shetty K. 2010. Phenolic compounds, antioxidant activity an in vitro inhibitory potential against key enzymes relevant for hyperglycemia and hypertension of commonly used medicinal plants, herbs and spices in Latin America. Bioresource Technology, 101: 4676-4689.

- García M., González-Coloma A., Donadel O.J., Ardanaz C.E., Tonn C.E. & Sosa M. 2007. Insecticidal effects of *Flourensia oolepis* Blake (Asteraceae) essential oil. Biochemical Systematics and Ecology, 35: 181-187.

- Gil A., Van Baren C.M., Di Leo Lira P.M. & Bandoni A.L. 2007. Identification of the genotype from the content and composition of Lemon Verbena (*Aloysia citriodora* Palau). Journal of Agricultural and Food Chemistry, 55: 8664-8669.

- Gillij Y.G., Gleiser R.M. & Zygadlo, J.A. 2008. Mosquito repellent activity of essential oils of aromatic plants growing in Argentina. Bioresource Technology 99, 2507-2515.

- Gillott C. Entomology. 2005. 3er ed. Springer, Netherlands. 831pp.

- Gleiser R.M. & Zygadlo J.A. 2007. Insecticidal properties of essential oils from *Lippia turbinate* and *Lippia polystachya* (Verbenaceae) against *Culex quinquefasciatus* (Diptera: Culicidae). Parasitology Research, 101:1349-1354.

- Gleiser R.M., Bonino M.A. & Zygadlo J.A. 2011.Repellence of essential oils of aromatic plants growing in Argentina against *Aedes aegypti* (Diptera: Culicidae). Parasitology Research, 108:69-78.

- Godfray H.C., Beddington J.R., Crute I.R., Haddad L., Lawrence D., Muir J.F., Pretty J., Robinson S., Thomas S.M. & Toulmin C. 2010. Food Security: The Challenge of Feeding 9 Billion People, Science 327(5967): 812-818.

- Goldsworthy G.J., Coast G.M., Wheeler H., Cusinato O., Kay I., Khambay B. 1992. The structural and functional activity of neuropeptides. En: Crampton J.M. & Eggleston P. (Eds.). Royal Entomological Society Symposium on Insect Molecular Sciences. Academic Press, London, 205-255 pp.

- González-Coloma A., Reina M., Fraga B.M., Díaz C.E. & Cabrera R. 2007. Bioplaguicidas naturales para la protección de cultivos, 19-30 pp. En: Lira Saldívar R.H. Bioplaguicidas y control biológico. CIQA, México. 231 pp.

- Govere J., Durrheim D.N., Du T.N., Hunt R.H. & Coetzee M. 2000. Local plants as repellents against *Anopheles arabiensis*, in Mpumalanga province, South Africa. Central African Journal of Medicine, 46: 213-216.

- Grancza L. 1985. Molecular pharmacological investigation of medicinal plant substances. II. inhibition of acetylcholinesterase by monoterpene derivatives in vitro. Zeitschrift für Naturforshung, 40: 151-153.

- Graziano M.N., Segui M. & Coussio J.D. 1967. Estudio de los flavonoides presentes en plantas argentinas. Anales de la Asociación química Argentina, 55: 235-237.

- Grodnitzky J.A. & Coats J.R. 2002. QSAR Evaluation of Monoterpenoids' Insecticidal Activity. Journal of Agricultural and Food Chemistry, 50: 4576-4580.

- Gruenwald J., Brendler T. & Jaenicke C. 2000. PDR for Herbal Medicines. 2 Ed. Medical Economics Company, Inc., Montvale, NJ. 858 pp.

- Grundy D.L. & Still C.C. 1985. Inhibition of acetylcholinesterase by pulegone-1,2-epoxide. Pesticide Biochemistry and Physiology, 23: 383-388.

- Gu H.J., Cheng S.S., Lin C.Y., Huang C.G. & Chang S.T. 2009. Repellency of essential oils of *Cryptomeria japonica* (Pinaceae) against adults of the mosquitoes *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae). Journal of Agricultural and Food Chemistry, 57: 11127-11133.

- Guala M.S., Elder H.V., Perez G. & Chiesa A. 2009. Evaluación del poder antioxidante de fracciones de aceite esencial crudo de *Schinus molle* L. obtenidas por destilación al vacío. Información Tecnológica, 20(2): 83-88.

- Guendouz-Benrima A. & Doumandji-Mitiche B. 2006. Effect of plant extracts of *Eucalyptus gomphocephala*, *Schinus molle* and *Melia azedarach* on *Schistocerca gregaria* (Forsal, 1775) (Insecta: Orthoptera) under laboratory conditions. En: IX Arab Congress of Plant Protection, Damascus, Syria. Ex 11. E-153.

- Guenther E. 1948. The essential oils-history, origin in plants production, analysis. Lancaster Press, Inc. New York. Vol. 1. 427 pp.

- Gullan P.J. & Cranston P.S. 2010. The insects-an outline of entomology. 4° ed. Eds. John Wiley and sons, PO198SQ, UK. 584pp.

- Guerrero Maldonado, N. 2008. Uso y valoración de plantas medicinales y tintóreas presentes en Santiago del Estero, Argentina. Universidad Politécnica de Madrid, Escuela Técnica Superior de Ingenieros en montes. Proyecto de fin de carrera. Madrid, España. 380pp.

- Günther E. 1948. The Essential Oils: History-origin in Plants-Production-Analysis. Jepson Press: New York, USA. Vol 1. 452pp.

- Gupta M.P. 1995. 270 Plantas Medicinales Iberoamericanas. Ed. Talleres de Editorial Presencia Ltda, Bogota. 617 pp.

- Gutiérrez M.M., Stefanazzi N., Werdin González J., Benzi V. & Ferrero A.A. 2009. Actividad fumigante de aceites esenciales de *Schinus molle* (Anacardiaceae) y *Tagetes terniflora* (Asteraceae) en adultos de *Pediculus humanus capitis* (Insecta; Anoplura; Pediculidae). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas, 8: 176-179.

- Hanson A.D., Rathinasabapathi B., Chamberlin B. & Gage D.A.1991. Comparative Physiological Evidence that β-Alanine Betaine and Choline-*O*-Sulfate Act as Compatible Osmolytes in Halophytic *Limonium* Species. Plant Physiology, 97(3): 1199-1205.

- Hanson A.D., Rathinasabapathi B., Rivoal J., Burnet M, Dillon M.O & Gage D.A.1994. Osmoprotective compounds in the Plumbaginaceae: A natural experiment in metabolic engineering of stress tolerance. Proceedings of the National Academy of Sciences, 91: 306-310.

- Harshini S., Nachman R.J. & Sreekumar S. 2002. Inhibition of digestive enzyme release by neuropeptides in larvae of *Opisina arenosella* (Lepidoptera: Cryptophasidae). Comparative Biochemistry and Physiology, 132: 353‑358.

- Harshini S., Manchu V., Sunitha V.B., Sreekumar S. & Nachman R.J. 2003. In vitro release of amylase by culekinins in two insects: *Opisinia arenosella* (Lepidoptera) and *Rhynchophorus ferrugineus* (Coleoptera). Trends in Life Science, 17:61‑64.

- Hashim M.S. & Devi K.S. 2003. Insecticidal action of the polyphenolic rich fractions from the stem bark of *Streblus asper* on *Dysdercus cingulatus*. Fitoterapia, 74: 670-676.

- Hauser F., Cazzamali G., Williamson M., Park Y., Li B., Tanaya Y., Predel R., Neupert S., Schachtner J., Verleyen P. & Gimmelikhuijzen C.J.P. 2008. A genome-wide inventory of neurohormone GPCRs in the red flour beetle *Tribolium castaneum.* Frontiers in Neuroendocrinology, 29: 142-165.

- Hayouni E.A., Chraief I., Abedrabba M., Bouix M., Leveau J.Y., Mohammed H. & Hamdi M. 2008. Tunisian *Salvia officinalis* L. and *Schinus molle* L. essential oils: their chemical compositions and their preservative effects against Salmonella inoculated in minced beef meat. International Journal of Food Microbiology, 125(3): 242-251.

- Hellion-Ibarrola M.C., Ibarrola D.A., Montalbetti Y., Kennedy M.L., Heinichen O., Campuzano M., Ferro E.A., Alvarenga N., Tortoriello J., De Lima T.C. & Mora S. 2008. The antidepressant-like effects of *Aloysia polystachya* (Griseb.) Moldenke (Verbenaceae) in mice. Phytomedicine, 15(6-7): 478-483.

- Hilje L. 2005. Cómo determinar la repelencia de sustancias aleloquímicas sobre las moscas blancas. Manejo Integrado de Plagas y Agroecología (Costa Rica), 74: 94-98.

- Hori M. 2003. Repellency of essential oils against the cigarette beetle, *Lasioderma serricorne* (Fabricius) (Coleoptera: Anobiidae). Applied Entomology and Zoology, 38: 467-473.

- Houghton P.J., Ren Y. & Howes M.J. 2006. Acetylcholinesterase inhibitors from plants and fungi. Natural Product Reports, 23: 181-199.

- Huerta A., Chiffelle I., Puga K., Azúa F. & Araya J.E. 2010. Toxicity and repellence of aqueous and ethanolic extracts from *Schinus molle* on elm leaf beetle *Xanthogaleruca luteola.* Crop Protection, 29(10): 1118-1123.

- Hummelbrunner L.A. & Isman M.B. 2001. Acute, sublethal, antifeedant, and synergistic effects of monoterpenoid essential oil compounds on the tobacco cutworm, *Spodoptera litura* (Lep. Noctuidae). Journal of Agricultural and Food Chemistry, 49: 715-720.

- Iannacone J.O. & Lamas G.M. 2003. Toxicological effects of extracts of Peruvian peppertree (*Schinus molle*) and lantana (*Lantana camara*) on *Chrysoperla externa* (Neuroptera: Chrysopidae), *Trichogramma pintoi* (Hymenoptera: Trichogrammatidae) and *Copidosoma koehleri* (Hymenoptera: Encyrtidae) in Peru. Agricultura Técnica, 63(4): 347-360.

- Iannacone J.O. & Alvariño L. 2010. Toxicidad de *Schinus molle* L. (Anacardiaceae) a cuatro controladores biológicos de plagas agrícolas en el Perú. Acta zoológica Mexicana, 26(3): 603-615.

- INTA. 2008. Eficiencia de postcosecha: generación, desarrollo y difusión de tecnologías para aumentar la eficiencia de acondicionado, secado y almacenaje de cereales, oleaginosas y cultivos industriales del país. Disponible en: http://www.inta.gov.ar/balcarce/precop/2008/efic.htm.

- INTA. 2011. Trigo: es posible reducir un 20% las pérdidas de cosecha. Disponible en: www.intainforma.inta.gov.ar

- INTA. 2012. Un círculo virtuoso: valor agregado en origen. XI (126). Disponible en: www.intainforma.inta.gov.ar

- Isman M.B. 1997. Neem and other insecticides berriers to commercialization. Phytoparasitica 25, 339-344.

- Isman M.B. 2000. Plant essential oils for pest and disease management. Crop Protection, 19: 603-608.

- Isman M.B. 2006. Botanical insecticides, deterrents, and repellents in modern agriculture and an increasingly regulated world. Annual Review of Entomology, 51:45-66.

- Isman M.B., Machial C.M., Miresmailli S. & Bainard L.D. 2007. Essential oil-based pesticides: new insights from old chemistry. En: Ohkawa H., Miyagawa H. & Lee P.W. 2007. Pesticide Chemistry-crop protection, public health, environmental healthy. Wiley-VCH verlag GmbH & CO. 201-209.

- Janssen T., Meelkop E., Lindemans M., Verstraelen K., Husson S.J., Temmerman L., Nachman R.J. & Schoofs L. 2008. Discovery of a cholecystokinin-gastrin-like signaling system in nematodes. Endocrinology, 149: 2826-2839.

- Jayasekara T.K., Stevenson P.C., Hall D.R. & Belmain S.R. 2005. Effect of volatile constituents from *Securidaca longependuculata* on insect pests of stored grain. Journal of Chemical Ecology, 31(2): 303-313.

- Jemâa J.M.B., Tersim N., Toudert K.T. & Khouja M.L. 2012. Insecticidal activities of essential oils from leaves of *Laurus nobilis* L. from Tunisia, Algeria and Morocco, and comparative chemical composition. Journal of Stored Products Research, 48: 97-104.

- Johnsen A.H. & Rehfeld J.F. 1990. Cionin: a disulfotyrosyl hybrid of cholecystokinin and gastrin from the neural ganglion of the protochordate *Ciona intestinalis.* Journal of Biological Chemistry, 265: 3054-3058.

- Jolivet P. & Verma K.K. 2005. Fascinating Insects - some aspects of insect life. Pensoft publishers, Sofia, Moscow. 310pp.

- Jordán M.J., Martínez R.M., Cases M.A. & Sotomayor J.A. 2003. Watering level effect on Thymus hyemalis Lange essential oil yield and composition. Journal of Agricultural and Food Chemistry, 51(18): 5420-5427.

- Jordán M.J., Martínez R.M., Goodner K.L., Baldwin E.A. & Sotomayor J.A. 2006. Seasonal variation of *Thymus hyemalis* Lange and Spanish *Thymus vulgaris* L. essential oils composition. Industrial Crops and Products, 24(3): 253-263.

- Joy P.P., Thomas J., Mathew S. & Skaria B.P. 2001. Medicinal Plants. Tropical Horticulture Vol. 2. Eds. Bose T.K., Kabir J., Das P. & Joy P.P. Naya Prokash, Calcutta, 449-632 pp.

- Kasimala M.B. & Kasimala B.B. 2012. A review on Brazilian pepper plant: *Schinus molle*. Journal of Atoms and Molecules, 2(2): 6-13.

- Kayser O., Kiderlen A.F., Laatsch H. & Croft S.L. 2000. In vitro leishmanicidal activity of monomeric and dimeric naphthoquinones. Acta Tropica, 76: 131-138.

- Kembro, J.M., Marin, R.H., Zygadlo, J.A. & Gleiser, R.M. 2009. Effects of the essential oils of *Lippia turbinata* and *Lippia polystachya* (Verbenaceae) on the temporal pattern of locomotion of the mosquito *Culex quinquefasciatus* (Diptera: Culicidae) larvae. Parasitology Research, 104:1119-1127.

- Khater H.F., Hanafy A., Abdel-Mageed A.D., Ramadan M.Y. & El-Madawy R.S. 2011. Control of the myiasis-producing fly, *Lucilia sericata*, with Egyptian essential oils. International Journal of Dermatology, 50(2): 187–194.

- Khater H.F. 2012. Prospects of botanical biopesticides in insect pest management. Journal of Applied Pharmaceutical Science, 2(5): 244-259.

- Koehler P.G & Pereira R.M. 1994. Lesser grain borer, *Rhyzopertha dominica* (Coleoptera, Bostrichidae) University of Florida. Disponible en: http://edis.ifas.ufl.edu

- Kubiak T.M., Larsen M.J., Burton K.J., Bannow C.A., Martin R.A., Zantello M.R. & Lowery D.E. 2002. Cloning and functional expression of the first *Drosophila melanogaste*r sulfakinin receptor DSK-R1. Biochemical and Biophysical Research Communications, 291: 313-320.

- Kuhn U., Rottenberger S., Biesenthal T., Wolf A., Schebeske G., Ciccioli P. & Kesselmeier J. 2004. Strong correlation between isoprene emission and gross photosynthetic capacity during leaf phenology of the tropical tree species *Hymenaea courbaril* with fundamental changes in volatile organic compounds emission composition during early leaf development. Plant, Cell & Environment, 27(12):1469–1485.

- Kurdelas R.R, López S., Lima B., Feresin G.E., Zygadlo J., Zacchino S., López M.L., Tapia A. & Freile M.L. 2012. Chemical composition, anti-insect and antimicrobial activity of *Baccharis darwinii* essential oil from Argentina, Patagonia. Industrial Crops and Products, 40: 261-267.

- Lahm G.P., Stevenson T.M., Selby T.P., Freudenberger J.H., Dubas C.M., Smith B.K., Cordova D., Flexner L., Clark C.E., Bellin C.A. & Hollingshaus J.G. 2007. Rynaxypyr^{TM}: A New Anthranilic Diamide Insecticide Acting at the Ryanodine Receptor. En: Ohkawa H., Miyagawa H. & Lee P.W. 2007. Pesticide Chemistry-crop protection, public health, environmental healthy. Wiley-VCH verlag GmbH & CO. 111-120.

- Lambert B. & Peferoen M. 1992. Insecticidal promise of *Bacillus thuringiensis*. BioScience, 42(2):112-122.

- Lazarovits G., Goettel M.S. & Vincent C. 2007. Adeventures in Biocontrol. En: Vincent C., Goettel M.S. & Lazarovits G. 2007. Biological control: a global perspective. Ed. CABI publishing, UK. 456pp.

- Lee S.E. 2002. Biochemical mechanisms conferring cross-resistance to fumigant toxicities of essential oils in a chlorpyrifos-methyl resistant strain of *Oryzaephilus surinamensis* L. (Coleoptera: Silvanidae). Journal of Stored Products Research, 38: 157-166.

- Lee S., Peterson C.J. & Coats J.R. 2003. Fumigation toxicity of monoterpenoids to several stored product insects. Journal of Stored Product Research, 39: 77–85.

- Lee B.H., Annis P.C., Tumaalii F. & Choi W.S. 2004. Fumigant toxicity of essential oils from Myrtaceae family and 1,8-cineol against 3 major stored-grain insects. Journal of Stored Product Research, 40: 553-564.

- Legname P.R. 1982. Árboles indígenas de noroeste argentino. Opera Lilloana, 34: 5-226.

- Levine, M.J. 2007. Pesticides-a toxic time bomb in our midst. Ed. Praeger. Westport, Connecticut-London. 265 pp.

- Lichtenstein E.P., Liang T.T., Schulz K.R., Schnoes H.K. & Carter G.T. 1974. Insecticidal and synergistic components isolated from Dill plants. Journal of Agricultural and Food Chemistry, 22: 658-664.

- Likhitwitayawuid K., Kaewamatawong R., Ruangrungsi N. & Krungkrai J. 1998. Anti-malarial naphthoquinones from *Nepenthes thorelii*. Planta Medica, 64: 237-241.

- Lim E.K. & Bowles D. 2012. Plant production systems for bioactive small molecules. Current Opinion in Biotechnology, 23:271-277.

- Liu Z.L. & Ho S.H. 1999. Bioactivity of the essential oil extracted from *Evodia rutaecarpa* Hook f. et Thomas against the grain storage insects, *Sitophilus zeamais* Motsch. and *Tribolium castaneum* (Herbst). Journal of Stored Product Research, 35: 317-328.

- Lledó M.D, Erben M. & Crespo, M.B. 2003. *Myriolepis*, a new genus segregated from *Limonium* (Plumbaginaceae). Taxón, 52: 67-73.

- Lombardo A. 1979. Plantas medicinales de la flora indígena. Almanaque del Banco de Seguros del estado. Montevideo, Uruguay 184 -185.

- Longstaff B.C. 1999. An experimental and modeling study of the demographic performance of *Rhyzopertha dominica* (F.) I. development rate. Journal of Stored Product Research, 35: 89-98.

- López A.G., Theumer M.G., Zygadlo J.A. & Rubinstein H.R. 2004. Aromatic plants essential oils activity on *Fusarium verticillioides* Fumonisin B1 production in corn grain. Mycopathologia, 154: 343-349.

- López Belchi M.D. 2008. Toxicidad volátil de monoterpenoides y mecanismos bioquímicos en insectos plaga del arroz almacenado. Tesis Doctor en Química, Universidad de Murcia, Murcia, España. 230pp.

- López M.D., Jordán M.J. & Pascual-Villalobos M.J. 2008. Toxic xompounds in essential oils of coriander, caraway and basil active against stored rice pests. Journal of Stored Product Research, 44: 273-278.

- Lorini I. & Galley D.J. 1998. Relative effectiveness of topical, filter paper and grain applications of deltamethrin, and associated behaviour of *Rhyzopertha dominica* (F.) Strains. Journal of Stored Product Research, 34(4): 377-383.

- Machado D.G., Kaster M.P., Binfaré R.W., Dias M., Santos A.R.S., Pizzolatti M.G., Brighente I.M.C. & Rodrigues A.L.S. 2007. Antidepressant-like effect of the extract from leaves of *Schinus molle* L. in mice: Evidence for the involvement of the monoaminergic system. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 31(2): 421-428.

- Maestro J.L., Aguilar R., Pascual N., Valero M.L., Piulachs M.D., Andreu D., Navarro I. & Belles X. 2001. Screening of antifeedant activity in brain extracts led to the identification of sulfakinin as a satiety promoter in the German cockroach. Are arthropod sulfakinins homologous to vertebrate gastrins-cholecystokinins? European Journal of Biochemistry, 268: 5824-5830.

- Maffei M. & Chialva F. 1990. Essential oils from *Schinus molle* L. berries and leaves. Flavour and Fragance Journal, 5: 49-52.

- Manual de Procedimientos Operativos Estandarizados de Campo para Documentar Incidentes de Mortandad de Fauna Silvestre en Agroecosistemas. Anexo 8-legislación argentina sobre productos fitosanitarios y ecotoxicología. Disponible en: http://www.imperiorural.com.ar/imperio/INTA/aguilucho/pdf/048_anexo_8.pdf

- Mareggiani G. 2001. Manejo de insectos plaga mediante sustancias semioquímicas de origen vegetal. Manejo Integrado de Plagas, 60: 22-30.

- Markham K.R., Ternai B., Stanley R., Geiger H. & Mabry T.J. 1978. Carbon-13 NMR studies of flavonoids-III. Naturally occurring flavonoids glycosides and their acylated derivatives. Tetrahedron, 34: 1389-1397.

- Martínez Carretero E. 2009. Flora de Mendoza. Multequina [online] vol.18, n.2. Disponible en: www.scielo.org.ar/scielo.php?script=sci_arttext&pid=S1852-73292009000200006&lng=es&nrm=iso.

- Mathew N., Paily K.P., Abidha Vanamali P., Kalyanasundaram M., Balaraman K. 2002. Macrofilaricidal activity of the plant *Plumbago indica/rosea* in vitro. Drug Development Research, 56: 33-39.

- McVeigh P., Leech S., Marks N.J., Geary T.G. & Maule A.G. 2006. Gene expression and pharmacology of nematode NLP-12 neuropeptides. International Journal for Parasitology, 36: 633-640.

- Meyering-Vos M. & Müller A. 2007. RNA interference suggests sulfakinins as satiety effectors in the cricket *Gryllus bimaculatus*. Journal of Insect Physiology, 53: 840-848.

- Mill P.J. 1985. Structure and physiology of the respiratory system. En: Kerkut G.A. & Gilbert L.I. Comprehensive insect physiology, biochemistry and pharmacology. Pergamon, Oxford, United Kingdom, Vol. 3: 517-593.

- Millet Y., Jourglard J., Steinmetz M., Tognetti P., Joanny P. & Arditti J. 1981. Toxicity of some essentials oils from *Aloysia polystachya* and *Aloysia citriodora* against the soybean pest essentials plant oils. Clinical and experimental study. Clinical Toxicology, 18:1485-1498.

- Miralles D.J., Serrago R.A. & Carretero R. 2007. Generación del Rendimiento en trigo. En: Producción de Trigo. Satorre E.H (Ed.) AACREA, Cap. Fed., Argentina. 135pp.

- Miyazawa M., Watanabe H., Umemoto K. & Kameoka H. 1998. Inhibition of acetylcholinesterase activity by essential oils of Mentha species. Journal of Agricultural and Food Chemistry, 46: 3431-3434.

- Mölck C., Micha S. & Wyss U. 1999. Attraction to odour of infested plants and learning behavior in the aphid parasitoid *Aphelinus abdominalis*. Journal of Plant Diseases and Protection, 106: 557-567.

- Montanari R.M., Barbosa L.C.A, Demuner A.J., Silva C.J., Carvalho L.S. & Andrade N.J. 2011. Chemical composition and antibacterial activity of essential oils from Verbenaceae species: alternative sources of (*E*)-caryophyllene and germacrene-D. Quimica Nova, 34 (9): 1550-1555.

- Mora S., Díaz-Véliz G., Millán R., Lungenstrass H., Quirós S., Coto-Morales T. & Hellion-Ibarrola M.C. 2005.Anxiolytic and antidepressant-like effects of hydroalcoholic extract from *Aloysia polystachya* in rats. Pharmacology Biochemistry and Behavior, 82(2): 373-378.

- Mordue A.J. & Blackwell A. 1993. Azadirachtin: an update. Journal of Insect Physiology, 39: 903-924.

- Mori K. 2007. Searching Environmentally Benign Methods for Pest Control: Reflections of a Synthetic Chemist. En: Ohkawa H., Miyagawa H. & Lee P.W. 2007. Pesticide Chemistry-crop protection, public health, environmental healthy. Wiley-VCH verlag GmbH & CO. 13-22pp.

- Mors W.B., Rizzini C.T. & Pereira N.A. 2000. Medicinal Plants of Brazil. En: Duke J.A., Bogenschutz-Godwin M.J. & Ottesen A.R. 2009. Duke's handbook of medicinal plants of Latin America. CRC Press, Inc., Boca Raton, FL. 962 pp.

- Mound L.A. 1990. Insects. Ed. Knopf. 63pp.

- Moura T.F.A.L, Schenkel E.P., Shaapoval E.E.S, Simões C.M.O & Santos R.I. 1985. Estudos farmacológicos preliminaries das raízes do *Limonium brasiliense* (Boiss.) Kuntze-Plumbaginaceae (Baicuru). Caderno de Farmácia, 1(1): 45-54.

- Múlgura M.E. 2003. Verbenaceae. Tribu II. Lantanae, parte A. En: Anton A.M. & Zuloaga F.O. (Ed.) Flora fanerógama Argentina, 84: 3-46.

- Muñoz J.D. 2000. Anacardiaceae. En: Hunziker A.T. (Ed.). Flora fanerógama Argentina, 65: 1-28.

- Murray A.P., Rodríguez S., Frontera M. A., Tomas M.A. & Mulet M.C. 2004. Antioxidant metabolites from *Limonium brasiliense* (Boiss.) Kuntze. Zeitschrift für Naturforschung, 59c: 477-480.

- Murray A.P., Frontera M.A., Tomas M.A. & Mulet M.C. 2005. Gas Chromatography-Mass Spectrometry Study of the Essential Oils of *Schinus longifolia* (Lindl.) Speg., *Schinus fasciculata* (Griseb.) I. M. Johnst., and *Schinus areira* L. Zeitschrift für Naturforschung, 60c: 25-29.

- Nachman R.J., Holman G.M., Haddon W.F. & Ling N. 1986a. Leucosulfakinin, a sulfated insect neuropeptide with homology to gastrin and cholecystikinin. Science, 234: 71-73.

- Nachman R.J., Holman G.M., Cook B.J., Haddon W.F. & Ling N. 1986b. Leucosulfakinin II, a blocked sulfated insect neuropeptide with homology to cholecystikinin and gastrin. Biochemical and Biophysical Research Communications, 140: 357-364.

- Nachman R.J., Holman G.M., Haddon W.F. & Vensel W.H. 1989a. Effect of sulfate position on myotropic activity of the gastrin/CCK-like insect leucokinins. International Journal of Peptides and Proteins Research, 33: 223-229.

- Nachman R.J., Holman G.M., Haddon W.F. & Hayes T.K. 1989b. Structure-activity relationships for myotropic activity of the gastrin/cholecystokinin-like insect sulfakinin. Peptides Research, 2: 171-177.

- Nachman R.J., Holman G.M., Hayes T.K. & Beier R.C. 1993. Structure-activity relationships for inhibitory insect myosuppressins: contrast with the stimulatory sulfakinins. Peptides, 14: 665-670.

- Nachman R.J., Giard W., Favrel P., Suresh T., Sreekumar S. & Holman G.M., 1997a. Insect myosuppressins and sulfakinins stimulate release of the digestive enzyme a-amylase in two invertebrates: the scallop *Pecten maximus* and insect *Rhynchophorus ferrugineus*. En: Beckwith B.E., Saria A., Chronwall B.M., Sandman C.A. & Strand F.L. (Eds.), Neuropeptides in Development and Aging. Annals of the New York Academy of Science, 814: 335–338.

- Nachman R.J., Isaac R.E., Coast G.M. & Holman G.M. 1997b. Aib-containing analogues of the insect kinin neuropeptide family demonstrate resistance to an insect angiotensin-converting enzyme and potent diuretic activity. Peptides, 18: 53- 57.

- Nachman R.J., Coast G.M. & Douat C. 2003. A C‑terminal aldehyde insect kinin analog enhances inhibition of weight gain and induces significant mortality in *Helicoverpa zea* larvae. Peptides, 24: 1615‑1621.

- Nachman R.J., Vercammen T., Williams H., Kaczmarek K., Zabrocki J., Schoofs L. 2005. Aliphatic amino diacid Asu functions as an effective mimic of Tyr (SO_3H) in sulfakinins for myotropic and food intake-inhibition activity in insects. Peptides, 26: 115-120.

- Nachman R.J., Fehrentz J.A., Martinez J., Kaczmarek K., Zabrocki J. & Coast G.M. 2007. A C-terminal aldehyde analog of the insect kinins inhibits diuresis in the housefly. Peptides, 28: 146-152.

- Nachman R.J. & Pietrantonio P.V. 2010. Interaction of mimetic analogs of insect kinin neuropeptides with arthropod receptors. En: Geary T.G. & Maule A.G. 2010. Neuropeptide systems as targets for parasite and pest control. Austin, TX. Landen Bioscience, 86-98 pp.

- Nam S., El Sherbeiny A.E.A. & El Sissi H.I. 1969. Local plants as potential sources of tannins in Egypt. Part IV (Aceraceae to Flacourtiaceae). Qualitas Plantarum et Materiae Vegetabiles, 17(4): 384-394.

- Nattudurai G., Paulraj M.G. & Ignacimuthu S. 2012. Fumigant toxicity of volatile synthetic compounds and natural oils against red flour beetle *Tribolium castaneum* (Herbst) (Coleopetera: Tenebrionidae). Journal of King Saud University–Science, 24: 153-159.

- Negahban M., Moharramipour S. & Sefidkon F. 2007. Fumigant toxicity of essential oil from *Artemisia sieberi* Besser against three stored-product insects. Journal of Stored Product Research, 43(2): 123-128.

- Nerio L.S., Olivero-Verbel J. & Stashenko E. 2010. Repellent activity of essential oils: a review. Bioresource Technology, 101: 372-378.

- Nguyen A.T., Malonne H., Duez P., Vanhaelen-Fastre R., Vanhaelen M. & Fontaine J. 2004. Cytotoxic constituents from *Plumbago zeylanica*. Fitoterapia, 75: 500-504.

- Nichols R., Schneuwly S.A. & Dixon J.E. 1988. Identification and characterization of a *Drosophila* homologue to the vertebrate neuropeptide cholecystokinin. Journal of Biological Chemistry, 263: 12167-12170.

- Nichols R. 1992. Isolation and expression of the *Drosophila* drosulfakinin neural peptide gene product, DSK-1. Molecular and Cellular Neuroscience, 3: 342-347.

- Nichols R. & Lim I.A. 1996. Spatial and temporal immunocytochemical analysis of drosulfakinin (Dsk) gene products in the *Drosophila melanogaster* central nervous system. Cell and Tissue Research, 283: 107-116.

- Nichols R. 2007. The first nonsulfated sulfakinin activity reported suggests nsDSK acts in gut biology. Peptides, 28:767-773.

- Nichols R., Egle J.P., Langan N.R. & Palmer G.C. 2008. The different effects of structurally related sulfakinins on *Drosophila melanogaster* odor preference and locomotion suggest involvement of distinct mechanisms. Peptides, 29:2128-2135.

- Norris, D. 1990. Repellents. En: Morgan E. & Mandava N. Insect attractans and repellents. Handbook of natural pesticides. Ed. CRC Press, Boca Ratón, Florida. 149 pp.

- Novo R.J., Viglianco A. & Nassetta M. 1997. Actividad repelente de diferentes extractos vegetales sobre *Tribolium castaneum* (Herbst). Agriscientia XIV, 31-36.

- Ntonifor N.N., Brown R.H. & Mueller-Harvey I. 2002. Advqntages of soxflo extractions for phytochemical analysis and bioassay screening. 1. Terpenoids. Journal of Agricultural and food chemistry, 50: 6295-6300.

- Núñez M.B., Aguado M.I., Bela A.D., Hugo N., Sansberro P. & Raisman J. 2003. Caracterización de polvos obtenidos a partir de extractos de *Aloysia polystachya* (Griseb.) destinados a compresión directa. Universidad Nacional del Nordeste. Resumen E-057.

- Obeng-Ofori D. & Reichmuth C.H. 1997. Bioactivity of eugenol, a major component of *Ocimum suvae* (Wild) against four species of stored product Coleoptera. International Journal of Pest Management, 43: 89-94.

- OECD-FAO Agricultural Outlook 2008–2017. 2008. París. En: FAO. El estado mundial de la agricultura y la alimentación. 147pp.

- Odalo J.O., Omolo M.O., Malebo H., Angira J., Njeru P.M., Ndiege I.O. & Hassalani A. 2005. Repellency of essential oils of some plants from the Kenyan coast against *Anopheles gambiae*. Acta Tropica, 95: 210-218.

- Oerke E.C. 2006. Crop losses to pests. The Journal of Agricultural Science, 144: 31-43.

- Oh J., Bowling J.J., Carroll J.F., Demirci B., K. Başer H.C., Leininger T.D., Bernier U.R. & Hamann M.T. 2012. Natural product studies of U.S. endangered plants: Volatile components of *Lindera melissifolia* (Lauraceae) repel mosquitoes and ticks. Phytochemistry, 80: 28-36.

- Ojmelukwe P.C. & Adler C. 1999. Potential of Zimtaldehyde, 4-allyl-anisol, linalool, terpineol and other phytochemicals for the control of the confused flour beetle (*Tribolium confusum* J. d. V.) (Col., Tenebrionidae). Journal of Pest Science, 72: 81-86.

- Oliveira J.V. & Vendramin J.D. 1999. Repelência de óleos essenciais e pós vegetais sobre adultos de *Zabrotes subfasciatus* (Boh.) (Coleoptera: Bruchidae) em sementes de feijoeiro. Anais da Sociedade Entomológica do Brasil, 28(3): 549-554.

- Ono M., Yamashita M., Mori K., Masuoka C., Eto M., Kinjo J., Ikeda T., Yoshimitsu H. & Nohara T. 2008. Sesquiterpenoids, triterpenoids and flavonoids from the fruits of *Schinus molle*. Food Science and Technology Research, 14(5): 499-508.

- Onstad D.W. 2008. Insect resistance managment: biology, economics and prediction. 1° ed. Ed. Elsevier, Academic press, London, UK. 305pp.

- Palacios S.M., Bertoni A., Rossi Y., Santander R. & Urzúa A. 2009. Efficacy of Essential Oils from Edible Plants as Insecticides Against the House Fly, *Musca Domestica* L. Molecules, 14: 1938-1947.

- Papachristos D.P. & Stamopoulos D.C. 2002. Repellent, toxic and reproduction inhibitory effects of essential oil vapours on *Acanthoscelides obtectus* (Say) (Coleoptera: Bruchidae). Journal of Stored Product Research, 38: 117-128.

- Papachristos D.P., Kimbaris A.C., Papadopoulos N.T. & Polissiou M.G. 2009. Toxicity of citrus essential oils against *Ceratitis capitata* (Diptera: Tephritidae) larvae. Annals of Applied Biology, 155(3): 381–389.

- Park C., Kim S.I., Ahn Y.J. 2003a. Insecticidal activity of asarones identified in *Acorus gramineus* rhizome against three coleopteran stored product insects. Journal of Stored Product Research, 39: 333-342.

- Park I.K., Lee S.G., Choi D.H., Park J.D. & Ahn Y.J. 2003b. Insecticidal activities of constituents identified in the essential oil from leaves of *Chamaecyparis obtusa* against *Callosobruchus chinensis* (L.) and *Sitophilus oryzae* (L.). Journal of Stored Products Research, 39: 375-384.

- Pascual M.E., Slowing K., Carretero E., Sánchez Mata D. & Villar A. 2001. *Lippia*: traditional uses, chemistry and pharmacology-a review. Journal of Ethnopharmacology, 76: 201-214.

- Pascual-Villalobos M.J. & Robledo A. 1999. Anti-insect activity of plant extracts from the flora in southeastern Spain. Biochemical Systematics and Ecology, 27: 1-10.

- Pascual-Villalobos M.J., Ballesta-Acosta M.C. & Soler A. 2004**.** Toxicidad y repelencia de aceites esenciales en plagas de almacén de arroz. Boletín de Sanidad Vegetal, 30: 279- 286.

- Pavela R. 2013. Efficacy of naphthoquinones as insecticides against the house fly, *Musca domestica*. Industrial Crops and Products, 43: 745-750.

- Phillips A.K. 2009. Toxicity and repellency of essential oils to the german cockroach (Blatella germanica). Tesis Master en ciencia. Auburn, Alabama. 131pp.

- Prager, J.C. 1995. Environmental contaminant reference databook. New York, NY: Van Nostrand Reinhold. Volume 1. 727pp.

- Prajapati V., Tripathi A.K., Aggarwal K.K. & Khanuja S.P.S. 2005. Insecticidal, repellent and oviposition-deterrent activity of selected essential oils against *Anopheles stephensi*, *Aedes aeypti* and *Culex quinquefasciatus*. Bioresourse Technology, 96: 1749-1757.

- Prakash A., Rao J. & Nandagopal V. 2008. Future of Botanical Pesticides in rice, wheat, pulses and vegetables pest management. Journal of Biopesticides, 1(2):154-169.

- Prates H.T., Santos J.P., Waquil J.M., Fabris J.D., Oliveira A.B. & Foster J.E. 1998. Insecticidal activity of monoterpenes against *Rhyzopertha dominica* (F.) and *Tribolium castaneum* (Herbst). Journal of Stored Product Research, 34(4): 243-249.

- Predel R., Brandt W., Kellner R., Rapus J., Nachman R.J. & Gäde G. 1999. Post-translational modifications of insect sulfakinins. European Journal of Biochemistry, 263: 552-560.

- Price D.A. & Greenberg M.J. 1977. The structure of a molluscan cardioexcitatory neuropeptide. Science 197: 670-671.

- Priestley C.M., Williamson E.M., Wafford K.A. & Satelle D.B. 2003.Thymol, a constituent of thyme essential oil, is a positive allosteric modulator of human GABA A receptors and a homo-oligomeric GABA receptor from *Drosophila melanogaster*. British Journal of Pharmacology, 140: 1363-1372.

- Racke K.D. 2007. Pesticide Residues in Food and International Trade: Regulation and Safety Considerations. En: Ohkawa H., Miyagawa H. & Lee P.W. 2007. Pesticide Chemistry-crop protection, public health, environmental healthy. Wiley-VCH verlag GmbH & CO. 29-41pp.

- Ragone M.I., Sella M., Pastore A. & Consolini A.E. 2010. Sedative and cardiovascular effects of *Aloysia citriodora*, Palau on mice and rats. Latin American Journal of Pharmacy 29(1): 79-86.

- Rai M. & Carpinella M. 2006. Naturally occurring bioactive compounds. Elsevier. Amsterdam, The Netherlands. 515 pp.

- Rajendran S. & Sriranjini V. 2008. Plant products as fumigant for stored-product insect control. Journal of Stored Product Research, 44: 126-135.

- Rao A., Vinson S.B., Gilstrap F.E. & Michaels Jr. G.R. 1999. Response of an aphid parasitoid, *Aphelinus asychis* to its host, plant complex, and to malathion. Entomologia Experimentalis et Applicata, 91: 449-456.

- Rao H.R.G. & Wilbur D.A. 1972. Loss of wheat weight from feeding of lesser grain borer. Journal of the Kansas Entomological Society, 45: 238-241.

- Rattan R.S. 2010. Mechanism of action of insecticidal secondary metabolites of plant origin. Crop Protection, 29: 913-920.

- Rechcigl J.E. & Rechcigl N.A. 1999. Biological and biotechnological control of insect pests. Ed. Taylor & Francis. 392pp.

- Rees D. 2004. Insects of stored products. CSIRO publishing, Australia. 192pp.

- Reese J.C. & Beck S.D. 1976. Effects of allelochemics on the black cutworm, *Agrotis ipsilon*: effects of Resorcinol, Phloroglucinol and gallic acid on larval growth, development and utilization of food. Annals of the Entomological Society of America, 69(6): 999-1003.

- Regnault-Roger C. 1997. The potential of botanical essential oils for insect pest control. Integrated Pest Management Reviews, 2: 25-34.

- Regnault-Roger C., Philogène B. Jr. & Vincent C. 2004. Biopesticidas de origen vegetal. Mundi-Prensa. Madríd. 337pp.

- Regnault-Roger C., Vincent C. & Arnason J.T. 2012. Essential oils in insect control: low-risk products in a high-stakes world. Annual Review of Entomology, 57: 405-424.

- Regnie F.E. & Law J.H. 1968. Insect pheromones. Journal of Lipid Research, 9: 541-551.

- Ricciardi G.A. L., Ricciardi A. I. A. & Bandoni A.L. 2000. Fitoquímica de Verbenáceas (*Lippias* y *Aloysias*) del Nordeste Argentino. Comunicaciones Científicas y Tecnológicas, Universidad Nacional del Nordeste. Resumen E-039. Disponible en: http://www.unne.edu.ar/investigacion/comunicaciones.php

- Rice P.J. & Coats J.R. 1994. Insecticidal properties of several monoterpenoids to the house fly (Diptera: Muscidae), red flour beetle (Coleoptera: Tenebrionidae), and southern corn rootworm (Coleoptera: Chrysomelidae). Journal of Economic Entomology, 87: 1172-1179.

- Ripa R.S. 1971. Biología de tres coleóptera que atacan granos almacenados (Tenebrionidae, Cucujidae, Bostrichidae). Anales 1° Congreso Latinoamericano de entomología. Revista Peruana de Entomología, 14(2): 290-296.

- Rosito, J.F. 1975. Contribução à analise das raízes de *Limonium brasiliense* (Boiss.). Porto Alegre UFRGS, 37pp. dissertação de mestrao em farmacia. En: Moura T.F.A.L, Schenkel E.P., Shaapoval E.E.S, Simões C.M.O & Santos R.I. 1985. Estudos farmacológicos preliminaries das raízes do *Limonium brasiliense* (Boiss.) Kuntze-Plumbaginaceae (Baicuru). Caderno de Farmácia, 1(1): 45-54.

- Rossow R.A. 1999. Plumbaginaceae. En: Correa M.N. (Ed.). Flora fanerógama Argentina, 8(6): 33-37.

- Roth S., Fromm B., Gäde G. & Predel R. 2009. A proteomic approach for studying insect phylogeny: CAPA peptides of ancient insect taxa (Dictyoptera, Blattoptera) as a test case. BMC Evolutionary Biology, 3: 50.

- Rozman V., Kalinvic I. & Korunic Z. 2007. Toxicity of naturally occurring compounds of Lamiaceae and Lauraceae to three stored-product insects. Jounal of Stored Products Research, 43: 349-355.

- Ruberto G., Biondi D. & Renda A. 1999. The composition of the volatile oils of *Ferulago nodosa* obtained by steam distillation and supercritical carbón dioxide extraction. Phytochemical Analysis, 10: 241-246.

- Ruffa M.J., Ferraro G., Wagner M.L., Calcagno M.L., Campos R.H. & Cavallaro L. 2002. Cytotoxic effect of Argentine medicinal plant extracts on human hepatocellular carcinoma cell line. Journal of Ethnopharmacology, 79: 335-339.

- Ruffinengo S., Eguaras M., Floris I., Faverin C., Bailac P. & Ponzi M. 2005. LD_{50} and repellent effects of essential oils from argentinian wild plant species on *Varroa destructor*. Journal of Economic Entomology, 98: 651-655.

- Ryan M.F. & Byrne O. 1988. Plant-insect coevolution and inhibition of acetylcholinesterase. Journal of Chemical Ecology, 14: 1965-1975.

- Ryan M.F. 2002. Insect Chemoreception Fundamental and Applied. Kluwer Academic Publishers New York, Boston, Dordrecht, London, Moscow Print. 352pp.

- Sánchez Chopa C., Alzogaray R. & Ferrero A.A. 2006. Repellency Assays with *Schinus molle* var. *areira* (L.) (Anacardiaceae) Essential Oils against *Blattella germanica* L. (Blattodea: Blattellidae). Bioassay, 1(6): 1-3.

- Sánchez Chopa C. 2009a. *Schinus molle* var. *areira* y *Solanum eleagnifolium*, nuevas alternativas botánicas para el control de *Blattella germanica* insecto plaga de importancia en la salud humana. Tesis Doctor en Biología, Universidad Nacional del Sur, Bahía Blanca, Argentina. 183 pp.

- Sánchez Chopa C., Benzi V.S., Alzogaray R. & Ferrero A.A. 2009b. Actividad repelente de los extractos hexánicos y etanólicos de frutos de *Solanum eleagnifolium* (Solanaceae) sobre adultos de *Blattella germanica* (Insecta, Dictyoptera, Blattellidae). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas, 8(3): 172 – 175.

- Santos-Gomes P.C. & Fernandes-Ferreira M. 2005. Composition of the Essential Oils from Flowers and Leaves of Vervain [*Aloysia triphylla* (L'Herit.) Britton] Grown in Portugal. Journal of Essential Oil Research, 17: 73-78.

- Sanz J., Morales R., Soria A.C., Esteban J. & Martín-Álvarez P.J. 2008. Validación estadística de la presencia en plantas de quimiotipos caracterizados por la concentración de componentes volátiles obtenida mediante GC-MS. Botanica Complutensis, 32: 225-236.

- Sartoratto A., Machado A.L.M., Delarmelina C., Figueira G.M., Duarte M.C.T. & Rehder V.L.G. 2004. Composition and antimicrobial activity of essential oils from aromatic plants used in Brazil. Brazilian Journal of Microbiology, 35: 275-280.

- Schmourlo G., Mendoça-Filho R.R., Alviano C.S. & Costa S.S. 2005. Screening of antifungal agents using ethanol precipitation and bioauthopraphy of medicinal and food plants. Journal of Ethnopharmacology, 96: 563-568.

- Schoofs L., Holman G.M., Hayes T. & De Loof A. 1990. Isolation and identification of a sulfakinin-like peptide with sequence homology to vertebrate gastrin and cholecystokinin, from the brain of *Locusta migratoria.* En: McCaffery A.R. & Wilson I.D., eds. Chromatography and isolation of insect hormones and pheromones. Plenum, New York. 231-241pp.

- Schowalter T.D. 2011. Insect ecology: an ecosystem approach. Eds. Elsevier, San Diego, CA. 3ed. 572pp.

- Scrivanti L.R., Zunino M.P. & Zygadlo J.A. 2003. *Tagetes minuta* and *Schinus areira* essential oils as allelopathic agents. Biochemical Systematics and Ecology, 31: 563-572.

- Seinsche A., Dyker H., Lösel P., Backhaus D. & Scherkenbeck J. 2000. Effect of helicokinins and ACE inhibitors on water balance and development of *Heliothis virescens* larvae. Journal of Insect Physiology, 46: 1423-1431.

- Severin C., Bruzzese D., Di Sapio O., Gattuso M. & Gattuso S. 2006. Evaluation of the in vitro behaviour of *Aloysia citriodora* Palau: histological and chemical study. Molecular Medicinal Chemistry, 11: 19-20.

- Shaaya E., Ravid U., Paster N., Juven B., Zisman U. & Pissarev V. 1991. Fumigant toxicity of essential oils against four major stored-product insects. Journal of Chemical Ecology, 17: 499-504.

- Shaaya E., Kostjukovski M., Eilberg J. & Sukprakarn C. 1997. Plant Oils as Fumigants and Contact Insecticides for the Control of Stored-product Insects. Journal of Stored Products Research, 33(1): 7-15.

- Shaaya E. & Kostyukovsky M. 2007. Potential of phytochemicals as safe alternatives for the control of stored-product and cut flowers insects, 42-55 pp. En: Lira Saldívar R.H. Bioplaguicidas y control biológico. CIQA, México. 231 pp.

- Shao-Lin P., Jun W. & Qin-Feng G. 2004. Mechanism and active variety of alelochemicals. Acta Botanica Sinica, 46(7): 757-766.

- Shaver T.N. & Lukefahr M.J. 1969. Effect of flavonoid pigments and gossypol on growth and development of the bollworm, tobacoo budworm and pink bollworm. Journal of Economic Entomology, 62(3): 643-646.

- Siedo S.J. 2006. Systematics of *Aloysia*. Thesis doctor in phylosophy. University of Texas at Austin. 309pp.

- Silverstein R.M. 1981. Pheromones: background and potential for use in insect pest control. Science, 213: 1326-1332.

- Simas N.K., da Costa Lima E., da Rocha Conceição S., Machado Kuster R. & Martins de Oliveira Filho A. 2004. Productos naturais para o controle de transmissão da dengue-actividade larvicida de *Myroxylon balsamum* (óleo vermelho) e de terpenóides e fenilpropanóides. Química Nova, 27(1): 46-49.

- Slafer G.A., Miralles D.J., Savin R., Whitechurch E.M. & González F.G. 2003. Ciclo ontogénico, dinámica del desarrollo y generación del rendimiento y la calidad en trigo. En: Satorre E., Benech-Arnold R., Slafer G.A., de la Fuente E., Miralles D., Otegui M.E. & Savín R. Editorial Facultad de Agronomía. 101-134pp.

- Smith C.M. 2005. Antixenosis adverse effects of resistance on arthropod behavior. Plant Resistance to Arthropods. Springer. 424pp.

- Smolenski S.J., Silinis H., Famswortth N.R. 1974. Alkaloid screening, Lloydia, 37(3): 506-536.

- Spelman K., Duke J.A. & Bogenschutz-Godwin M.J. 2006. The synergy principle at work with plants, pathogens, insects, herbivores and humans. En: Cseke L.J., Kirakosyan A., Kaufman P.B., Warber S.L., Duke J.A. & Brielmann H.L. CRC Press, Boca Ratón. FL. 569 pp.

- Sreelatha T., Hymavathi A., Murthy J.M., Rani P.U., Rao J.M. & Babu K.S. 2010. Bioactivity-guided isolation of mosquitocidal constituents from the rhizomes of *Plumbago capensis* Thunb. Bioorganic & Medicinal Chemistry Letters, 20: 2974-2977.

- Stadler T., Buteler M. & Weaver D.K. 2010. Nanoinsecticidas: nuevas perspectivas para el control de plagas. Revista de la Sociedad Entomológica Argentina, 69(3-4): 149-156.

- Staljanssens D., Azari E.K., Christiaens O., Beaufays J., Lins L., Van Camp J. & Smagghe G. 2011. The CCK (-like) receptor in the animal kingdom: functions, evolution and structures. Peptides, 32: 607-619.

- Stamopoulos D.C., Damos P. & Karagianidou G. 2007. Bioactivity of five monoterpenoid vapours to *Tribolium confusum* (du Val) (Coleoptera: Tenebrionidae). Journal of Stored product Research, 43: 571-577.

- Stashenko E.E., Jaramillo B.E. & Martínez J.R. 2003. Comparación de la composición química y de la actividad antioxidante in vitro de los metabolitos secundarios volátiles de plantas de la familia Verbenaceae. Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales, 27 (105): 579-597.

- Steibel P., Troiani H.O. & Williamson T. 2001. Agregados al catálogo de las plantas naturalizadas y adventicias de la provincia de La Pampa, Argentina. Revista de la Facultad de Agronomía, Universidad Nacional de La Pampa, 11(1): 75-90.

- Steinbauer M.J. 1995. The insecticidal and repellent activity of *Schinus molle* L. (Anacardiaceae) against *Drosophila melanogaster* Meigen (Diptera: Drosophilidae) and *Tribolium confusum* Jaquelin Du Val (Coleoptera: Tenebrionidae). Genetic Applied Entomology, 26:13-18.

- Sterk G., Hassan S.A., Baillod M., Bakker F., Bigler F., Brümel S., Bogenschütz H., Boller E., Bromand B., Brun J., Calis J.N.M., Coremans-Pelseneer J., Duso C., Garrido A., Gove A., Heimbach U., Hokkanen H., Jacas J., Lewis G., Moreth L., Polgar L., Roversti L., Samsoe-Petersen L., Sauphanor B., Schaub L., Stäubli A., Tuset J.J., Vainio A., van De Veire M., Viggiani G., Viñuela E. & Vogt H. 1999. Results of the seventh joint pesticide testing programme carried out by the IOBC/WPRS-Working Group 'Pesticides and Beneficial Organisms'. BioControl, 44: 99-117.

- Stevens P. F. 2001. Angiosperm Phylogeny Website. Disponible en: http://www.mobot.org/MOBOT/research/APweb/

- Su H.C.F. & Horvat R. 1987. Isolation and characterization of four major components from insecticidally active lemon peel extract. Journal of Agricultural and Food Chemistry, 35: 509-511.

- Susurluk H., Çalişkan Zerrin, Gürkan O., Kirmizigül S. & Gören N. 2007. Antiffedant activity of some *Tanacetum* species and bioassay guided isolation of the secondary metabolites of *Tanacetum cadmeum* ssp. *Cadmeum* (Compositae). Industrial Crops and Products, 26: 220-228.

- Taarit M.B., Msaada K., Hosni K. & Marzouk B. 2010. Changes in fatty acid and essential oil composition of sage (*Salvia officinalis* L.) leaves under NaCl stress. Food Chemistry, 119(3): 951-956.

- Takabayashi J., Sato Y., Horikoshi M., Yamaoka R., Yano S., Ohsaki N. & Dicke M. 1998. Plant effects on parasitoid foraging: differences between two tritrophic systems. Biological Control, 11: 97-103.

- Talukder F.A. & Howse P.E. 1993. Deterrent and insecticidal effects of extracts of pithraj, *Aphanamixis polystachya* (Meliaceae), against *Tribolium castaneum* in storage. Journal of Chemical Ecology, 19: 2463-2471.

- Tarelli G., Zerba E.N. & Alzogaray A. 2009. Toxicity to vapor exposure and topical application of essential oils and monoterpenes on *Musca domestica* (Diptera: Muscidae). Journal of Economic Entomology, 102: 1383-1388.

- Tennyson S., Ravindran k.J. & Arivoli S. 2012. Screening of twenty five plant extracts for larvicidal activity against *Culex quinquefasciatus* Say (Diptera: Culicidae). Asian Pacific Journal of Tropical Biomedicine, 1130-1134.

- Terblanché F.C. & Kornelius G. 1996. Essential oil constituents of the genus Lippia (Verbenaceae)-a literature review. Journal of Essential Oil Research, 8: 471-485.

- Terhune S.T., Hoog J.W. & Lawrence B.M. 1974. β-Spathulene: a new sesquiterpene in *Schinus molle* oil. Phytochemistry, 13: 865-866.

- Thundiyil J.G., Stober J., Besbelli N. & Pronczuk J. 2008. Acute pesticide poisoning: a proposed classification tool. Bulletin of the World Health Organization, 86(3): 161-224.

- Trematerra P., Sciarreta A. & Tamasi E. 2000. Behavioural responses of *Oryzaephilus surinamensis, Tribolium castaneum* and *Tribolium confusum* to naturally and artificially damaged *durum* wheat kernels. Entomologia Experimentalis et Applicata, 94: 195-200.

- Tripathi A.K., Prajapati V. & Kumar S. 2003. Bioactivities of l-carvone, d-carvone and dihydrocarvone towards three stored product beetles. Journal of Economic Entomology, 96:1594-1601.

- Tripathi A.K., Upadhyay S., Bhuiyan M. & Bhattacharya P.R. 2009. A review on prospects of essential oils as biopesticide in insect-pest management. Journal of Pharmacognosy and Phytotherapy, 1(5): 52-63.

- Trongtokit Y., Rongsriyam Y., Komalamisra N. & Apiwathnasorn C. 2005. Comparative repellency of 38 essential oils against mosquito bites. Phytotherapy Research, 19: 303-309.

- Tsao R., Lee S., Rice P.J., Jensen C. & Coats J.R. 1995. Monoterpenoids and their synthetic derivatives as leads for new insect control agents. En: Baker D.R., Fenyes J.G. & Basarab G.S. Synthesis and chemistry of agrochemicals IV. American Chemical Society, Washington D.C. 312-324 pp.

- Tuley de Silva, K. 1995. A manual on the essential oil industry. Presentado en: 3° UNIDO Workshop on essential oil and aroma chemical industries held. Anadolu University, Medicinal and aromatic plant and drug research institute, Turkia. 232pp.

- Tunon H., Thorsell W., Mikiver A. & Malander I. 2006. Arthropod repellency, especially tick (*Ixodes ricinus*), exerted by extract from *Artemisia abrotanum* and essential oil from flowers of *Dianthus caryophyllum*. Fitoterapia, 77: 257-261.

- Valentão P., Andrade P.B., Areias F., Ferreres F. & Seabra R.M. 1999. Analysis of vervain flavonids by HPLC/diode array detector method. Its application to quality control. Journal of Agricultural and Food Chemistry, 47: 4579-4582.

- Valle Vega P. & Florentino B.L. 2000. Toxicología de alimentos. Instituto Nacional de Salud Pública, Centro Nacional de Salud Ambiental. México, D.F. ISBN 92-75-37004-4.

- van Driesche R.G., Hoddle M.S. & Center T.D. 2007. Control de plagas y malezas por enemigos naturals. USADA US FS, FHTET. 751pp.

- van Emden H.F. & Service M.W. 2004. Pest and Vector control. Cambridge University Press, Cambridge, UK. Online-ISBN: 9780511616334. 52 pp.

- van Lenteren J.C. 2003. Quality Control and Production of Biological Control Agents Theory and Testing Procedures. Ed. CABI publishing, UK. 327pp.

- Vargas, M.R. & Ubillo, F.A. 2001. Toxicidad de pesticidas sobre enemigos naturales de plagas agrícolas. Agricultura Técnica, 61(1): 35-41.

- Veenstra J.A. 1989. Isolation and structure of two gastrin/CCK-like neuropeptides from the American cockroach homologous to the leucosulfakinins. Neuropeptides, 14: 145-149.

- Vela Gurovic M.S. 2009. Metabolitos secundarios bioactivos a partir de plantas silvestres de la región de Bahía Blanca. Tesis Doctor en Química, Universidad Nacional del Sur, Bahía Blanca, Argentina. 212pp.

- Viale J.A. 1996. Conservación de granos en silos-chacra. INTA Marcos Juárez. En: Agroindustria. 1° muestra tecnológica integral para la alimentación animal. CAFAB-FAIAPA. 13(87): 10pp.

- Vilchez R.M. & Miller O.R.R. 2006. Calidad fitosanitaria y presencia de aflatoxinas en granos de sorgo (*Sorghum bicolor* (L.) Moench), en almacen y campo, 2005. Trabajo de diploma. Universidad Nacional Agraria. Facultad de agronomía. Managua, Nicaragua. 96 pp.

- Viturro C., Bandoni A., Dellacassa E., Atti Sefarini L. & Elder H. 2010. Problemática *Schinus* en Latinoamerica. En: Dellacassa E. 2010. Normalización de productos naturales obtenidos de especies de la flora aromática Latinoamericana. EDIPUCRS, Porto Alegre. 334 pp.

- Vogel H, Silva M.L. & Razmilic I. 1999. Seasonal fluctuation of essential oil content in Lemon Verbena (*Aloysia triphylla*). Acta horticulturae (500): 75-79.

- Vyvyan J.R. 2002. Allelochemicals as leads for new herbicides and agrochemicals. Tetrahedron, 58: 1631-1646.

- Waliwitiya R., Belton P., Nicholson R.A. & Lowenberger C.A. 2009. Effects of the essential oil constituent thymol and other neuroactive chemicals on flight motor activity and wing beat frequency in the blowfly *Phaenicia sericata.* Pest Management Science, 66 (3): 277-289.

- Wannaz E.D., Zygadlo J.A. & Pignata M. L. 2003. Air pollutants effect on monoterpenes composition and foliar chemical parameters in *Schinus areira* L. Science of Total Environment, 305: 177-193.

- Ware G.W. & Whitacre D.M. 2004. The Pesticide Book. 6th ed. MeisterPro Information Resources, Ohio. 496pp.

- Warthen J.D. & Morgan D. 1990. Insect feeding deterrents. En: Handbook of natural pesticides: Insect attractants and repents. Ed. ED Morgan; NB Mandava. Boca Ratón, Florida. US, CRC Inc. Press., 6: 23-134.

- Weaver R.J. & Audsley N. 2008. Neuropeptides of the beetle, *Tenebrio molitor* identified using MALDI-TOF mass spectrometry and deduced sequences from the *Tribolium castaneum* genome. Peptides, 29: 168-178.

- Wei Z., Baggerman G., Nachman R.J., Goldsworthy G., Verhaert P., De Loof A. & Schoofs L. 2000. Sulfakinins reduce food intake in the desert locust, *Schistocerca gregaria.* Journal of insect physiology (46) 1259-1265.

- Weinzierl R. & Henn T. 1991. Alternatives in insect management: biological and biorational approaches. North Central Regional Publication 401, University of Illinois. 73 pp.

- Welling W. & Paterson G.D. 1985. Toxicodynamics of insecticides. En: Kerkut G.A. & Gilbert L.I. Comprehensive insect physiology, biochemistry and pharmacology. Pergamon, Oxford, United Kingdom, 12: 603-646.

- Werdin González J.O.; Sánchez Chopa C. & Ferrero A. A. 2005. Actividad repelente del aceite esencial de frutos de *Schinus molle* (Anacardiacea) en adultos de *Nezara viridula* (Hemiptera. Pentatomidae). Revista de la Sociedad Entomológica Argentina (S.E.A), 64(4): 469-470.

- Werdin González J.O.; Murray A.P. & Ferrero A.A. 2008. Bioactividad de aceites esenciales de *Schinus molle* var. areira (Anacardiaceae) en ninfas II de Nezara viridula (Hemiptera: Pentatomidae). Boletín de la Sanidad Vegetal- Plagas, 34: 367-375.

- Werdin González J.O. 2010a. Alternativas para el manejo integrado de *Nezara viridula* (L.), insect plaga de la soja. Tesis Doctor en Biología. Dpto. de Biología, bioquímica y Farmacia. Universidad Nacional del Sur. Bs. As. 253 pp.

- Werdin González J.O., Gutiérrez M.M., Murray A.P. & Ferrero A. 2010b. Biological Activity of Essential Oils from *Aloysia polystachya* and *Aloysia citriodora* (Verbenaceae) against *Nezara viridula* (Hemiptera: Pentatomidae), Soybean Pest. Natural Product Comunications, 5 (2): 301-306.

- Werdin J.O., Gutiérrez M.M. & Ferrero A.A. 2011. Repellency Assays with Plant Extracts and Essential Oils from *Schinus molle* var. *areira* (L) (Anacardiaceae) and DEET against *Nezara viridula* L. (Hemiptera: Pentatomidae). Bioassay, 6(8):1-4.

- White G.B. 2007. Terminology of insect repellents. En: Insect Repellents: Principles, Methods and Uses. Ed. Debboun M., Frances S.P. & Strickman D. CRC Press, Boca Raton, FL, 31–46 pp.

- Whiting P., Savchenko T., Sarker S.D., Rees H. & Dinnan L. 1998. Phytoecdysteroids in the genus *Limonium* (Plumbaginaceae). Biochemical systematic and ecology, 26: 695-698.

- Wilkes S. 2005. Insects. Ed. Gareth Stevens Pub. 48pp.

- Wimalaratne P.D.C. 1993. Isolation and identification of house fly, *Musca domestica* L., repellents in the pepper tree, *Schinus molle* L. Thesis of Master of Science, Department of Chemistry, Simon Fraiser University, Canadá. 119 pp.

- Wink M. 2006. Importance of plant secondary metabolites for protection against insects and microbial infections, 251-268pp. En: Rai M. & Carpinella M.C. Naturally Occurring Bioactive Compounds, Elsevier B.V. Amsterdam, The Netherlands. 502pp.

- Xina N., Ren Y.L., Forrester R.I., Minga X. & Mahon D. 2008. Toxicity of ethyl formate to adult *Sitophilus oryzae* (L.), *Tribolium castaneum* (herbst) and *Rhyzopertha dominica* (F.). Journal of Stored Product Research, 44(3): 241-246.

- Yu N., Benzi V.S., Zotti M.J., Staljanssens D., Kaczmarek K., Zabrocki J., Nachman R.J. & Smagghe G. 2012. Analogs of sulfakinin-related peptides demonstrate reduction in food intake in the red flour beetle, *Tribolium castaneum*, while putative antagonists increase consumption. Peptides. pii: S0196-9781(12)00489-5. doi: 10.1016/j.peptides.2012.12.005

- Yueqin, Z. 2007. Identificación y actividad farmacológica de principios de especies antiinflamatorias. Tesis doctoral. Universidad de Valencia. España. 178pp.

- Zare Z., Majd A., Sattari T.N, Iranbakhsh A. & Mehrabian S. 2011. The comparative study of antimicrobial activity of leaves and flowers methanolic extracts of *Lippia citriodora* H.B.K (Verbenaceae). American-Eurasian Journal of Agricultural & Environmental Science, 10(5): 901-905.

- Zettler J.L. & Cuperus G.W. 1990. Pesticide resistance in *Tribolium castaneum* (Coleoptera: Tenebrionidae) and *Rhizopertha dominica* (Coleoptera: Bostrichidae) in wheat. Journal of Economic Entomology, 83: 1677-1681.

- Zhou M., Robards K., Glennie-Holmes M. & Helliwell S. 1999. Analysis of volatile compounds and their contribution to flavor in cereals. Journal of Agricultural and food chemistry, 47: 3941-3953.

- Zoubiri S. & Baaliouamer A. 2011. Chemical composition and insecticidal properties of some aromatic herbs essential oils from Algeria. Food Chemistry, 129: 179-182.

Capítulo 7: Apéndice

Apéndice

Publicaciones derivadas de esta tesis:

Verónica Benzi, Natalia Stefanazzi & Adriana A. Ferrero. 2009. Bioactividad de aceites esenciales de hojas y frutos del Aguaribay (*Schinus molle*) en el gorgojo del arroz (*Sitophilus oryzae*). *Chilean Journal of Agricultural Research*. 69 (2): 154-159.

Verónica S. Benzi, Ana P. Murray & Adriana A. Ferrero. 2009. Insecticidal and insect-repellent activities of essential oils from Verbenaceae and Anacardiaceae against *Rhyzopertha dominica* (Coleoptera: Bostrichidae). *Natural Product Communications*. 4 (9): 1287-1290.

Na Yu, **Veronica Benzi**, Moises João Zotti, Dorien Staljanssens, Krzysztof Kaczmarek, Janusz Zabrocki, Ronald J. Nachman & Guy Smagghe. 2013. Analogs of sulfakinin-related peptides demonstrate reduction in food intake in the red flour beetle, *Tribolium castaneum*, while putative antagonists increase consumpion. *Peptides*. 41: 107-112.

Comunicaciones cortas:

Verónica Benzi, Carolina Sánchez Chopa y Adriana A. Ferrero. Comparación del efecto insecticida de dos especies de *Aloysia* (Verbenaceae) sobre *Rhyzopertha Dominica* (Insecta, Coleoptera, Bostrichidae). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas. 2009. 8 (2): 151- 153. ISSN: 0717-7917

Sánchez Chopa, C; **Benzi, V**.; Alzogaray, R. y Ferrero, A.A. Actividad repelente de los extractos hexánicos y etanólicos de frutos de *Solanum eleagnifolium* (Solanaceae) en adultod de *Blatella germanica* (Insecta, Dictyoptera, Blattidae). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas. 2009. 8 (3): 172- 175. ISSN: 0717-7917

Gutiérrez, M. M., Stefanazzi, N., Werdin Gonzalez, J., **Benzi, V.** & Ferrero, A. A. Actividad fumigante de aceites esenciales de *Schinus molle* (Anacardiaceae) y *Tajetes terniflora* (Asteraceae) en adultos de *Pediculus humanus capitis* (Insecta, Anoplura, Pediculidae). Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas. 2009. 8(3): 176-179. ISSN: 0717-7917.

Presentaciones a congresos derivadas de esta tesis:

V. Benzi, N. Stefanazzi & A. A. Ferrero. "Feeding deterrent activity of the essential oil from fruits of *Schinus molle var. areira* (Anacardiaceae) against *Sitophilus oryzae* (Coleoptera, Curculionidae)". V Encontro Brasileiro de Ecologia Química. (V EBEQ) Londrina, Brasil. Octubre de 2007. ISBN 978-85-7033-009-3

Benzi, V; Stefanazzi, N y Ferrero, A. A. "Actividad antialimentaria del aceite esencial de hojas de *Schinus molle* var *areira* (Anacardiaceae) en adultos de *Sitophilus oryzae* (Insecta, Coleoptera, Curculionidae)". XVI Simposio Nacional de Química Orgánica. Mar del Plata del 11 al 14 de noviembre de 2007. ISBN 978-987-24002-0-0

V. Benzi; N. Stefanazzi y A.A. Ferrero. "Actividad repelente del aceite esencial de hojas de *Schinus molle* var. *areira* (Anacardiaceae) en adultos de *Sitophilus oryzae* (Coleoptera, Curculionidae)". XXIX Congreso Nacional de Entomología. Santiago, Chile. 28, 29 y 30 de noviembre de 2007.

Verónica Benzi, Sanchez Chopa Carolina e Ferrero Adriana A. "Avaliação do efeito repelente de óleos vegetais de folhas de *Aloysia polystachia* e *Aloysia citriodora* (verbenaceae) em *Rhizopertha dominica* (f.) (coleoptera, bostrichidae)". XII congresso brasileiro de entomologia. Uberlandia, Brasil. 24 al 29 de Agosto de 2008.

Benzi, V. & Ferrero, A. "Actividad repelente de aceites esenciales de frutos y hojas de *Schinus molle* var. *areira* (Anacardiaceae) en *Rhizopertha dominica* (Coleoptera: Bostrichidae)". IV congresso brasileiro de defensivos agrícolas naturais (COBRADAN). Belém, Brasil. 10 al 14 de Noviembre de 2008.

Benzi Verónica & Adriana A. Ferrero. "Efecto fumigante del aceite esencial de hojas y frutos de *Schinus molle* var. areira (Anacardiaceae) en *Rhizopertha dominica* (Coleoptera: Bostrichidae)". XXX Congreso Nacional de Entomología. Talca, Chile. 03 al 05 de diciembre de 2008.

Benzi Verónica, Sánchez Chopa Carolina & Ferrero Adriana A. "Comparación del efecto insecticida de dos especies de *Aloysia* (Verbenaceae) en *Rhizopertha dominica* (Insecta, Coleoptera, Bostrichidae)". I Congreso Internacional de Farmacobotánica, Chillan, Chile, 6 al 9 de enero 2009.

Benzi, V. S., Sánchez Chopa C. & Ferreo A. A. "Toxicidad por contacto de *Aloysia polystachya* en dos especies plaga de granos almacenados". Jornadas Fitosanitarias, Termas de Río Hondo, Argentina, 30 de Septiembre, 1 y 2 de Octubre de 2009.

Benzi, V. S.; Sánchez Chopa, C.; Murray, A. P & Ferrero, A. A. "Actividad insecticida de *Aloysia citriodora* (Verbenaceae) en insectos plaga de granos almacenados". XVIII Simposio Nacional de Química Orgánica. Mendoza, Argentina. 15 al 18 de Noviembre de 2009. ISBN 978-987-24002-0-0

Benzi, V. S.; Sánchez Chopa C.; Murray A. P. & Ferrero A. A**.** "Actividad fumigante del aceite esencial de frutos de *Schinus molle* var. *areira* (Anacardiaceae) en *sitophilus oryzae* (Coleoptera: Curculionidae)". V Simposio Brasileiro de Óleos Essenciais. Río de Janeiro, Brasil. 3 al 6 de Noviembre de 2009.

Verónica Benzi, Carolina Sánchez Chopa & Adriana Ferrero. "Toxicidad por contacto de *Aloysia polystachia* (Verbenaceae) en plagas de granos almacenados: *Tribolium confusum* y *Tribolium castaneum* (Coleoptera: Tenebrionidae)" XXXI Congreso Nacional de Entomología, Santiago, Chile. 2 al 4 de diciembre de 2009.

Benzi Verónica, Rodríguez Silvana, Murray A. Paula & Ferrero Adriana. "*Limonium brasiliense* (Boiss) Kuntze, an alternative to its medicinal properties." 1º Reunión Internacional de Ciencias Farmaceúticas (RICIFA). Córdoba, Argentina. 24 y 25 de Junio de 2010.

Verónica Benzi, Natalia Stefanazzi & Adriana A. Ferrero. "Efecto repelente de Verbenáceas contra *Tribolium castaneum* Herbst". II Congreso Argentino- Chileno- Hispano, la diversidad química y biológica de organismos de la región Patagónica. Puerto Madryn, Argentina. 21 al 24 de Septiembre de 2010.

Verónica S. Benzi, Silvana Rodriguez, Ana P. Murray, Carolina Sanchéz Chopa & Adriana A. Ferrero. "Insecticidal activity of *Limonium brasiliense* (Plumbaginaceae) against *Rhizopertha dominica* (Coleoptera)". I encuentro de la Asociación Latino Americana de Ecología Química (ALAEQ). Colonia del Sacramento, Uruguay. 17- 20 de Octubre de 2010.

Benzi Verónica S, Stefanazzi Natalia, Murray Ana P. & Ferrero Adriana A. "Actividad fumigante de dos especies de Aloysias en *Tribolium confusum* (Coleoptera: Tenebrionidae). II reunión conjunta de sociedades de biología de la República Argentina. San Juan, Argentina. 17-19 de Agosto de 2011.

Verónica Benzi, Carolina Sánchez Chopa, Lilian Descamps, Murray Ana P. & Ferrero Adriana A. "Toxicidad por contacto del extracto acuoso y los subextractos de *Schinus molle* var. *areira* (Anacardiaceae)" III Congreso de Química de Productos Naturales Chileno-Argentino-Hispano. Punta Arenas, Chile. 11 al 13 de Abril de 2012.

N. Yu, **V. Benzi**, R.J. Nachman & G. Smagghe. "Expression profile and role of sulfakinin and receptor in model and pest insect *Tribolium castaneum*" 26th Conference of European Comparative Endocrinologists (CECE). Zürich, Switzerland. 21-25 August 2012.

Verónica S. Benzi, Na Yu, Ronald J. Nachman, Adriana A. Ferrero & Guy Smagghe. Synthetic and biostabilized sulfakinin peptides affect food intake in *Rhyzopertha dominica* (Coleoptera: Bostrichidae). 2nd Meeting of the Latin American Association of Chemical Ecology (ALAEQ). Córdoba, Argentina. 02-05 December 2012.