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Título Profesional o Grado Académico (incluya el año de obtención):

**QUÍMICO, UNIVERSIDAD DE CHILE, 1971. LICENCIATURA EN CIENCIAS,
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Estudios de Postgrado o Especialización (institución donde lo obtuvo y año de obtención):

PH.D., QUÍMICA, UNIVERSITY OF CALIFORNIA, BERKELEY, USA, 1970

Actividad Actual e Institución en la cual trabaja:

**PROFESOR TITULAR DE LA UNIVERSIDAD DE CHILE. DEPARTAMENTO
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Reseña de su actividad laboral actual:

Una línea de investigación del Laboratorio de Química Ecológica estudia la interacción entre plantas, áfidos y parasitoides de ellos, tanto en el ambiente artificial constituido por un cultivo, como en el ambiente natural, en el cual los hospederos son especies de plantas nativas. La investigación incluye los mecanismos químicos de defensa de plantas contra áfidos y factores bióticos y abióticos que los modulan, los mecanismos de búsqueda del hospedero por parte de áfidos, los mecanismos de la regulación de las poblaciones de áfidos a través de compuestos semioquímicos involucrados en la comunicación intraespecífica, y la búsqueda de hospederos y de pareja por parasitoides de áfidos. Actualmente su preocupación se centra en un aspecto

específico de estas interacciones: ¿qué determina que algunos insectos sean especialistas, mientras otros son generalistas? ¿Qué ocurre a nivel genético-molecular cuando un insecto elige una planta por sobre otra?

Una segunda línea de investigación se relaciona con aspectos de historia de vida y comunicación química en insectos sociales nativos de Chile, incluyendo abejas, termitas y hormigas.

Últimamente, el Laboratorio de Química Ecológica ha iniciado una línea de investigación en Química Arqueológica que indaga sobre los patrones de interacción y movilidad en poblaciones pre-hispánicas del norte y centro de Chile usando marcadores químicos.

PUBLICACIONES INDEXADAS: (últimos 10 años).

Todas ISI salvo Nos. 6,7,8,9 (capítulos de libro); 23 (Scielo); 26,38,60 (libros)

1. Figueroa, C.C., Simon, J.-C., Dedryver C.-A. & Niemeyer, H.M. (2004) Genetic variability of the recently introduced aphid *Sitobion avenae* in Chile. In: Simon, J.-C., Dedryver, C.-A., Rispe, C. & Hullé, M. (eds.) *Aphids in a New Millennium. Proceedings of the 6th International Symposium on Aphids*, Versailles, INRA Editions, pp. 219-225.
2. Gaete-Eastman, C., Olivares-Donoso, R., Figueroa, C.C., Ramírez C.C. & Niemeyer, H.M. (2004) Genetic and morphological variation in *Neuquenaphis* aphids on southern beeches (*Nothofagus* spp.). In: Simon, J.-C., Dedryver, C.-A., Rispe, C. & Hullé, M. (eds.) *Aphids in a New Millennium. Proceedings of the 6th International Symposium on Aphids*, Versailles, INRA Editions, pp. 227-232.
3. Loayza-Muro, R., Figueroa, C.C. & Niemeyer, H.M. (2004) Host chemistry and genotypic variation of aphid populations. In: Simon, J.-C., Dedryver, C.-A., Rispe, C. & Hullé, M. (eds.) *Aphids in a New Millennium. Proceedings of the 6th International Symposium on Aphids*, Versailles, INRA Editions, 239-244.
4. Daza-Bustamante, P., Rodríguez, L.C., Figueroa, C.C., Fuentes-Contreras, E. & Niemeyer H.M. (2004) Attraction toward alfalfa and wheat aphid-host plant complexes explains the absence of genetic population structure of the parasitoid *Aphidius ervi* (Hymenoptera: Braconidae) in Chile. In: Simon, J.-C., Dedryver, C.-A., Rispe, C. & Hullé, M. (eds.) *Aphids in a New Millennium. Proceedings of the 6th International Symposium on Aphids*, Versailles, INRA Editions, pp. 281-286.
5. Fuentes-Contreras, E., Figueroa, C.C., Reyes, M., Briones, L.M. & Niemeyer, H.M. (2004) Genetic diversity and insecticide resistance of *Myzus persicae* (Hemiptera: Aphididae) populations from tobacco in Chile: evidence for the existence of a single predominant clone. *Bulletin of Entomological Research* 94: 11-18.
6. Gaete-Eastman, C., Olivares-Donoso, R., Figueroa, C.C., Niemeyer, H.M. & Ramírez, C.C. (2004) Diet breath and genetic differentiation in phytophagous insects:

the case of Southern beech aphids (Hemiptera, Aphididae, Neuquenaphidinae). *Bulletin of Entomological Research* 94: 219-227.

7. Labra, A. & Niemeyer, H.M. (2004) Variability in the assessment of snake predation risk by *Liolaemus* lizards. *Ethology* 110: 649-662.

8. Thoison, O., Sévenet, T., Niemeyer, H.M. & Russell, G.B. (2004) Insect antifeedant compounds from *Nothofagus dombeyi* and *N. pumilio*. *Phytochemistry* 65: 2173-2176.

9. Russell, G.B., Faúndez, E.H. & Niemeyer, H.M. (2004) Selection of *Nothofagus* host trees by the aphids *Neuquenaphis staryi* and *Neuquenaphis edwardsi*. *Journal of Chemical Ecology* 30: 2231-2241.

10. Figueroa, C.C., Simon, J.-C., Le Gallic, J.-F., Prunier-Leterme, N., Briones, L.M., Dedryver, C.-A. & Niemeyer, H.M. (2004) Effect of host defense chemicals on clonal distribution and performance of different genotypes of the cereal aphid *Sitobion avenae* (Hemiptera: Aphididae). *Journal of Chemical Ecology* 30: 2515-2525.

11. Troncoso, A.J., Vargas, R.R., Tapia, D.H., Olivares-Donoso, R. & Niemeyer, H.M. (2005) Host selection by the generalist aphid *Myzus persicae* (Hemiptera: Aphididae) and its subspecies specialised on tobacco, after being reared on the same host. *Bulletin of Entomological Research* 95: 23-28.

12. Rodríguez, L.C. & Niemeyer, H.M. (2005) Integrated pest management, semiochemicals and microbial antagonists in Latin American agriculture. *Crop Protection* 24: 615-623.

13. Figueroa, C.C., Simon, J.-C., Le Gallic, J.-F., Prunier-Leterme, N., Briones, L.M., Dedryver, C.-A. & Niemeyer, H.M. (2005) Genetic structure and clonal diversity of an introduced pest in Chile, the cereal aphid *Sitobion avenae*. *Heredity* 95: 24-33.

14. Olivares-Donoso, R. & Niemeyer, H.M. (2005) Non-host volatiles do not affect host acceptance by alate virginoparae of *Rhopalosiphum padi* (Hemiptera: Aphididae) settled on the host plant surface. *European Journal of Entomology* 102: 303-304.

15. Rodríguez, L.C., Faúndez, E.H. & Niemeyer, H.M. (2005) Mate searching in the cochineal insect, *Dactylopius coccus* Costa (Hemiptera: Dactylopiidae). *European Journal of Entomology* 102: 305-306.

16. Vargas, R.R., Troncoso, A.J., Tapia, D.H., Olivares-Donoso, R. & Niemeyer, H.M. (2005) Behavioural differences during host selection between alate virginoparae of generalist and tobacco-specialist *Myzus persicae*. *Entomologia Experimentalis et Applicata* 116: 43-53.

17. Macel, M., Bruinsma, M., Dijkstra, S.M., Ooijendijk, T., Niemeyer, H.M. & Klinkhamer, P.G.L. (2005) Differences in effects of pyrrolizidine alkaloids on five generalist insect herbivore species. *Journal of Chemical Ecology* 31: 1493- 1508.

18. Rodríguez, L.C., Faúndez, E., Seymour, J., Escobar, C.A., Espinoza, L., Petroutsa, M., Ayres, A. & Niemeyer, H.M. (2005) Efecto de factores bióticos sobre la

concentración de ácido carmínico en la cochinilla (*Dactylopius coccus* Costa) (Homoptera: Dactylopiidae). *Agricultura Técnica (Chile)* 65: 323-329.

19. Villagra, C.A., Vásquez, R.A. & Niemeyer, H.M. (2005) Associative odour learning affects mating behaviour in *Aphidius ervi* males. *European Journal of Entomology* 102: 557-559.

20. Valdivia, C.E. & Niemeyer, H.M. (2005) Reduced maternal fecundity of the high-Andean perennial herb *Alstroemeria umbellata* (Alstroemeriaceae) by aphid herbivory. *New Zealand Journal of Ecology* 29: 321-324.

21. Teillier, S., Riedemann, P., Aldunate, G. & Niemeyer, H. (2005) Flora de la Reserva Nacional Río Clarillo: Guía de Identificación de Especies. Impresos Socias, Santiago, Chile. 368 pp.

22. Ramírez, C.C., Villagra, C.A. & Niemeyer, H.M. (2006) Increased xylem ingestion and decreased phloem ingestion in the aphid *Acyrtosiphon pisum* (Hemiptera: Aphididae) parasitised by *Aphidius ervi* (Hymenoptera: Braconidae). *European Journal of Entomology* 103: 263-265.

23. Guerrero, C., Espinoza, L., Niemeyer, H.M. & Simonetti, J.A. (2006) Using fecal profiles of bile acids to assess habitat use by threatened carnivores in the Maulino forest of central Chile. *Revista Chilena de Historia Natural* 79: 89-95.

24. Rodríguez, L.C., Pascual, U. & Niemeyer, H.M. (2006) Local identification and valuation of ecosystem goods and services from *Opuntia* scrublands of Ayacucho, Peru. *Ecological Economics* 57: 30-44.

25. Valdivia, C.E. & Niemeyer, H.M. (2006) Do floral syndromes predict specialisation in plant pollination systems? Assessment of diurnal and nocturnal pollination on *Escallonia myrtoidea*. *New Zealand Journal of Botany* 44: 135-141.

26. Bustamante, R.O., Chacón, P. & Niemeyer, H.M. (2006) Chemical defences in plants: an analysis of the vascular flora of Chile. *Chemoecology* 16: 145-151.

27. Valdivia, C.E. & Niemeyer, H.M. (2006) Do pollinators correlatedly select inflorescence size and amount of floral scents? An experimental assessment on *Escallonia myrtoidea*. *Austral Ecology* 31: 897-903.

28. Torres-Contreras, H., Olivares-Donoso, R. & Niemeyer, H.M. (2007) Solitary foraging in the ancestral South American ant, *Pogonomyrmex vermiculatus*. Is it due to constraints in the production or perception of trail pheromones? *Journal of Chemical Ecology* 33: 435-440.

29. Olivares-Donoso, R., Troncoso, A.J., Tapia, D.H., Aguilera-Olivares, D. & Niemeyer, H.M. (2007) Contrasting performances of generalist and specialist *Myzus persicae* (Hemiptera: Aphididae) reveal differential prevalence of maternal effects after host transfer. *Bulletin of Entomological Research* 97: 61-67.

30. Valdivia, C.E. & Niemeyer, H.M. (2007) Non-correlated evolution between herbivore- and pollinator-linked features on pollinator-limited *Aristolochia chilensis* (Aristolochiaceae). *Biological Journal of the Linnean Society* 91: 239-245.

31. Gutiérrez-Ibáñez, C., Villagra, C.A. & Niemeyer, H.M. (2007) Pre-pupation behaviour of the aphid parasitoid *Aphidius ervi* (Haliday) and its consequences for preimaginal learning. *Naturwissenschaften* 94: 595-600.
32. Villagra, C.A., Pennacchio, F. & Niemeyer, H.M. (2007) The effect of larval and early adult experience on behavioural plasticity of the aphid parasitoid *Aphidius ervi* (Hymenoptera, Braconidae, Aphidiinae). *Naturwissenschaften* 94: 903-911.
33. Niemeyer, H.M. & Teillier, S. (2007) *Aromas de la Flora Nativa de Chile*. Productora Gráfica Andros Ltda., Santiago, Chile. 448 pp.
34. Flores-Prado, L., Aguilera-Olivares, D. & Niemeyer, H.M. (2008) Nestmate recognition in *Manuelia postica* (Apidae, Xylocopinae): an eusocial trait is present in a solitary bee. *Proceedings of the Royal Society B* 275: 285-291.
35. Donoso, E.P., Bustamante, R.O., Carú, M. & Niemeyer, H.M. (2008) Water deficit as a driver of the mutualistic relationship between the fungus *Trichoderma harzianum* and two wheat genotypes. *Applied and Environmental Microbiology* 74: 1412-1417.
36. Flores-Prado, L., Chiappa, E. & Niemeyer, H.M. (2008) Nesting biology, life cycle, and interactions between females of *Manuelia postica*, a solitary species of the Xylocopinae (Hymenoptera: Apidae). *New Zealand Journal of Zoology* 35: 93-102.
37. Villagra, C.A., Vásquez, R.A. & Niemeyer, H.M. (2008) Olfactory conditioning in mate searching by the parasitoid *Aphidius ervi* (Hymenoptera: Braconidae). *Bulletin of Entomological Research* 98: 371-377.
38. Teillier, S., Urzúa, A. & Niemeyer, H.M. (2008) Chemical and morphological study of a putative hybrid between *Luzuriaga radicans* and *L. polyphylla* (Monocotyledoneae: Luzuriagaceae). *New Zealand Journal of Botany* 46: 321-326.
39. Tapia, D.H., Troncoso, A.J., Vargas, R.R., Olivares-Donoso, R. & Niemeyer, H.M. (2008) Experimental evidence for competitive exclusion of *Myzus persicae nicotianae* by *Myzus persicae* s.s. on sweet pepper, *Capsicum annum*. *European Journal of Entomology* 105: 643-648.
40. Lavandero, B., Labra, A., Ramírez, C.C., Niemeyer, H.M. & Fuentes-Contreras, E. (2009) Species richness of herbivorous insects on *Nothofagus* trees in South America and New Zealand: the importance of chemical attributes of the host. *Basic and Applied Ecology* 10: 10-18.
41. Aguilar, M.P., Labra, A. & Niemeyer, H.M. (2009) Chemical self-recognition in the lizard *Liolaemus fitzgeraldi*. *Journal of Ethology* 27: 181-184.
42. Pinto, C.F., Troncoso, A.J., Urzúa, A. & Niemeyer, H.M. (2009) Use of volatiles of *Aristolochia chilensis* (Aristolochiaceae) in host searching by fourth-instar larvae and adults of *Battus polydamas archidamas* (Papilionidae: Troidini). *European Journal of Entomology* 106: 63-68.

43. Niemeyer, H.M. (2009) Hydroxamic acids derived from 2-hydroxy-2H-1,4-benzoxazin-3(4H)-ones: key defense chemicals of cereals. *Journal of Agricultural and Food Chemistry* 57: 1677-1696.
44. Castañeda, L.E., Fuentes-Contreras, E., Niemeyer, H.M., Figueroa, C.C. & Nespolo, R.F. (2009) Energetic costs of detoxification systems in herbivores feeding on chemically defended host-plants: a correlational study in the grain aphid, *Sitobion avenae*. *Journal of Experimental Biology* 212: 1185-1190.
45. Cabezas, N.J., Urzúa, A. & Niemeyer, H.M. (2009) Translocation of isoquinoline alkaloids to the hemiparasite, *Tristerix verticillatus* from its host, *Berberis montana*. *Biochemical Systematics and Ecology* 35: 225-227.
46. Torres-Contreras, H. & Niemeyer, H.M. (2009) Fasting and chemical signals affect recruitment and foraging efficiency in the harvester ant, *Pogonomyrmex vermiculatus*. *Behaviour* 146: 923-938.
47. Pinto, C.F., Troncoso, A.J., Urzúa, A. & Niemeyer, H.M. (2009) Aristolochic acids affect the feeding behaviour and development of *Battus polydamas archidamas* larvae. *European Journal of Entomology* 106: 357-361.
48. Niemeyer, H.M. (2009) Composition of essential oils of five aromatic species of Asteraceae. *Journal of Essential Oil Research* 21: 350-353.
49. Troncoso, A.J., Cabezas, N.J., Faúndez, E.H., Urzúa, A. & Niemeyer, H.M. (2010) Host-mediated volatile polymorphism in a parasitic plant influences its attractiveness to pollinators. *Oecologia* 162: 413-425.
50. Flores-Prado, L. & Niemeyer, H.M. (2010) Kin recognition in the largely solitary bee, *Manuelia postica* (Apidae: Xylocopinae). *Ethology* 116: 466-471.
51. Castañeda, L.E., Figueroa, C.C., Filún, M., Fuentes-Contreras, E., Niemeyer, H.M. & Nespolo, R.F. (2010) Physiological approach to explain the ecological success of 'superclones' in aphids: interplay between detoxification enzymes, metabolism and fitness. *Journal of Insect Physiology* 56: 1058-1064.
52. Niemeyer, H.M. (2010) Composition of essential oils from *Satureja darwinii* (Benth.) Briq. and *S. multiflora* (R. et P.) Briq. (Lamiaceae). Relationship between chemotype and oil yield in *Satureja* spp. *Journal of Essential Oil Research* 22: 477-482.
53. Pinto, C.F., Urzúa, A. & Niemeyer, H.M. (2011) Sequestration of aristolochic acids from meridic diets by larvae of *Battus polydamas archidamas* (Papilionidae: Troidini). *European Journal of Entomology* 108: 41-45.
54. Villagra, C.A., Pinto, C.F., Penna, M. & Niemeyer, H.M. (2011) Male wing fanning by the aphid parasitoid *Aphidius ervi* (Hymenoptera: Braconidae) produces a courtship song. *Bulletin of Entomological Research* 101: 573-579.
55. Teillier, S., Marticorena, A. & Niemeyer, H.M. (2011) Flora andina de Santiago. Guía para la identificación de las especies de las cuencas del Maipo y del Mapocho. Imprenta Puntografix. 480 pp.

56. Catalán, T.P., Barceló, M., Niemeyer, H.M., Kalergis, A.M. & Bozinovic, F. (2011) Pathogen and diet-dependent foraging, nutritional and immune ecology in mealworms. *Evolutionary Ecology Research* 13: 711-723.
57. Marín, V.H., Rodríguez, L.C. & Niemeyer, H.M. (2012) A socio-ecological model of the *Opuntia* scrublands in the Peruvian Andes. *Ecological Modelling* 227: 136-146.
58. Catalán, T.P., Wozniak, A., Niemeyer, H.M., Kalergis, A.M. & Bozinovic, F. (2012) Interplay between thermal and immune ecology: effect of environmental temperature on insect immune performance and energetic costs after an immune challenge. *Journal of Insect Physiology* 58: 310-317.
59. Lemaitre, A.B., Troncoso, A.J. & Niemeyer, H.M. (2012) Host preference of a temperate mistletoe: Disproportional infection on three co-occurring host species influenced by differential success. *Austral Ecology* 37: 339-345.
60. Espinoza, J., Echeverría, J., Urzúa, A & Niemeyer, H.M. (2012) Withanolid amine and nicotine from *Dunalia spinosa* (Solanaceae). *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 11: 278-284.
61. Echeverría, J. & Niemeyer, H.M. (2012) Alkaloids from the native flora of Chile: a review. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 11: 291-305.
62. Echeverría, J. & Niemeyer, H.M. (2012) Phenylethylamines from *Browningia candelaris* (Cactaceae). *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 11: 341-344.
63. Catalán, T.P., Niemeyer, H.M., Kalergis, A.M. & Bozinovic, F. (2012) Interplay between behavioural thermoregulation and immune response in mealworms. *Journal of Insect Physiology* 58: 1450-1455.
64. Flores-Prado, L. & Niemeyer, H.M. (2012) Host location by ichneumonid parasitoids is associated with nest dimensions of the host bee species. *Neotropical Entomology* 41: 283-287.
65. Planella, M.T., Collao-Alvarado, K., Niemeyer, H.M. & Belmar, C. (2012) Morfometría comparada de semillas de *Nicotiana* (Solanaceae) e identificación de semillas carbonizadas provenientes de un sitio arqueológico en Chile Central. *Darwiniana* 50: 207-217.
66. Niemeyer, H.M. (2013) On the provenience of wood used in the manufacture of snuff trays from San Pedro de Atacama (Northern Chile). *Journal of Archaeological Science* 40: 398-404.
67. Niemeyer, H.M., Zapata, V., Cantillana, P., Missene, A., Aguilera, J. & Torres, A. (2013) Computed tomography study of snuff trays from San Pedro de Atacama (Northern Chile). *Journal of Archaeological Science* 40: 2036-2044.
68. Echeverría, J. & Niemeyer, H.M. (2013) Nicotine in the hair of mummies from San Pedro de Atacama (Northern Chile). *Journal of Archaeological Science* 40: 3561-3568.

PROYECTOS DE INVESTIGACIÓN: (últimos 10 años)

1. Causas proximales de la preferencia de hospedero del áfido *Myzus persicae* (responsable, 2002-2005, FONDECYT)
2. Aromas de la flora chilena, 2002-2006, FIA)
3. Microevolución de insectos fitófagos: una aproximación ecológica, fisiológica y genómica, Anillo Programa Bicentenario (titular, 2005-2008, PBCT)
4. Host-mediated changes in the phenotype of the hemiparasite *Tristerix verticillatus* (Loranthaceae) and in its interactions with pollinators, herbivores, and seed dispersers (responsable, 2008-2011, FONDECYT)
5. Interactions and human mobility in pre-Hispanic populations of Northern Chile: an integrative approach for the Social Sciences using biomedical, genetic, chemical and mineralogical markers (titular, 2010-2013, Anillo ACT-096)
6. Nest-mate and kin recognition, colony defense and inbreeding avoidance in the one-piece termite, *Neotermes chilensis* (responsable, 2012-2016, FONDECYT)
7. Los Complejos Fumatorios del Período Alfarero Temprano en Chile semiárido y centro-sur: un estudio multidisciplinario (co-investigador, 2012-2016, FONDECYT)

Actualización, mayo 2014