



Organic Chemistry

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We are working on Design, synthesis and structure-activity studies of insect neuropeptides. The aim of this work is development of environmentally friendly pesticides. The “green” approach is that pesticides based on insect peptide hormones are non-toxic for man and environment and are used in very small quantities compared to the conventional pesticides used today. Our group studies several insect peptides with different physiological functions. Presently we are working on the diuretic insect hormone Lomi-DH which is present in *Locusta migratoria*. This diuretic hormone control the balance of fluids in locusts and its uptake results in loss of fluids and finally the insect dies.

RELATED PUBLICATIONS

1. Proteolytic break down of the Neb-trypsin modulating oostatic factor (Neb-TMOF) in the hemolymph of different insects and its gut epithelial transport. . W. Zhu, A. Vandingenen, R. Huybrechts, T. Vercaemmen, G. Baggerman, A. De Loof, C.P. Poulos, A. Velentza and M. Breuer. *Journal of Insect Physiology* 47, 1235-1242 (2001).
2. New insights in Adipokinetic Hormone (AKH) precursor processing in *locusta migratoria* obtained by capillary liquid chromatography-tandem mass spectroscopy. G. Baggerman, J. Huybrechts, K. Hens, L. Harthoom, D. Van der Hors, C.Poulos, A. De loof and L. Schoofs *Peptides* 23, 635-644 (2002).
3. Activity of crustacean myotropic neuropeptides on the oviduct and hindgut of the crayfish *Astacus leptodactylus*. P.Torfs, R.J.Nachman, C.Poulos, A. De Loof and L. Schoofs *Invertebrate Reproduction & Development* 41(1-3), 137-142 (2002).
4. Structural elucidation and conformational properties of the toxin paralysis β -Ala-Tyr. I.Kyrikou, S.G. Grdadolnik, M.Tatari, C.Poulos and Th.Mavromoustakos. *Journal of Pharmaceutical and Biomedical Analysis* 31(4), 713-721 (2003).
5. The synthesis of an analogue of the locust CRF-like diuretic peptide and the biological activities of this and some C-terminal fragments. G.J.Goldsworthy, J.S. Chung, M.S.J. Simmonds, M. Tatari, S. Varouni and C.P. Poulos, *Peptides*, 24(10), 1607-1613 (2003)