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Identification of bioactive peptides from enzymatic hydrolysis of royal jelly

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Royal jelly (RJ) has been widely used in traditional consumables and in skin creams and ointments for health promotion. RJ is rich in bioactive constituents such as jelleines, 10-hydroxy-2-decenoic acid, royalisin as well as the major royal jelly proteins (MRJPs), all of which have shown antimicrobial effect *in vitro*. However, the characterization of RJ is far from complete, and the development of new characterization techniques is allowing the discovery of new compounds. Many new bioactive peptides have been identified using enzymatic hydrolysis as a tool. Enzymatic hydrolysis of RJ has verified the presence of peptides with anti-oxidant and anti-hypertensive activity. In the current work, using bioassay guided fractionation of RJ enzymatic digests; a total of 42 peptides were identified. The peptides, all belonging to the *Apis mellifera* genome, were identified using a combination of mass spectrometry and bioinformatics tools. Bioassay guided isolation led to the isolation and structure elucidation of three peptides with promising antimicrobial activity. These findings support the use of RJ as food preservative and its potential application as antibiotic.

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