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Synthesis and biological activity of a cyclic hexapeptide from *Dianthus superbus*

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A novel cyclic hexapeptide, dianthin A, is isolated from whole plants of *Dianthus superbus* (Caryophyllaceae) which is commonly used as diuretic and anti-inflammatory agent in the treatment of urinary infections, carbuncles and carcinoma of the oesophagus. This plant-originated cyclopolypeptide was synthesized in the laboratory by coupling of dipeptide Boc-L-asn(bzh)-L-phe-OH and tetrapeptide gly-L-leu-L-ala-L-tyr-OMe followed by cyclization of linear hexapeptide segment. Structure elucidation of newly synthesized cyclic peptide was done on basis of detailed spectral analysis including FTIR, ^{1}H NMR, ^{13}C NMR, FAB MS and elemental analysis. From the results of pharmacological screening, it was concluded that synthesized compound possessed high cytotoxic activity against DLA and EAC cell lines with CTC_{50} values of 15.1 and 18.6 μM and potent antimicrobial activity against pathogenic fungi *C. albicans* with MIC of 6 μg/ml. Moreover, moderate anthelmintic activity against earthworms *M. konkanensis*, *P. corethruses* and *Eudrilus* sp. at 2 mg cm^{-3} dose level, was also observed for cyclopolypetide.

Biography

Suresh Beniwal is post graduate (MPharm) in Pharmaceutical Chemistry from Rajiv Academy for Pharmacy, Mathura, Uttar Pradesh, India and presently pursuing PhD from Institute of Pharmacy, Kurukshetra University, Haryana, India since 2014.