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Design, synthesis and evaluation of new ACE-inhibitory peptides

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Ability of some peptides to exert a positive physiological response has gathered attention of researchers across the globe. Numerous bioactive peptides obtained from several sources have been reported with one or more different biological effects. These bioactive peptides exerted the physiological benefits after have been released from parent protein by *in vitro* processing or *in vivo* digestion. Scientific evidence does suggest the existence of specific transport systems for short di- and tripeptides in small intestine.

Among various bioactive peptides, antihypertensive peptides have been studied extensively and the mechanism of action involves inhibition of angiotensin I-converting enzyme (ACE), the key enzyme responsible for the regulation of blood pressure via the renin-angiotensin system. ACE inhibitory peptides have been obtained from milk and different food sources by elaborate procedures of processing. Recently, through *in vitro* evaluation, short peptides LRW, IKP and FW have been found to possess more potent ACE inhibitory potential than that well known milk proteins, VPP and IPP.

The present study was aimed at designing and synthesizing potential new ACE inhibitory peptides. Tripeptides were designed taking into consideration a database of 140 tripeptides from the published literature. The peptides synthesized by use of Fmoc chemistry were purified by RP-HPLC and characterized by LCMS. They were assayed *in vitro* for their ACE inhibitory potential. Among the peptides studied, one peptide elicited significant % ACE inhibitory activity at 10ppm and 20ppm comparable to control.

Biography

Preeti C. Sangave has completed her Ph.D. from Institute of Chemical Technology (ICT), Mumbai. She is currently heading the Pharmaceutical Biotechnology Department at SPP SPTM. She is the recipient of SAB Medox Young Investigator Award 2011, by Society of Applied Biotechnology, India. She has published her work in peer-reviewed journals.

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