Isolation and Antimicrobial Activity Against Pathogenic Yeasts of Peptides from Canavalia ensiformis Seeds

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During the last year, has become increasingly clear that proteins and peptides play an important role in the mechanisms of resistance against pathogens or insects. Among this group of proteins and peptides are LTPs, defensins, proteinase inhibitors and others. The aim of this work was to study the toxicity of peptides present in Canavalia ensiformis seeds against different pathogenic yeasts. Cotyledons of C. ensiformis (1g) were ground to a fine powder and then begin the steps of extraction. Flour was defatted with petroleum ether (1:10) at room temperature for 1 h. Peptides were extracted with a mixture of 1% (v/v) trifluoroacetic acid (TFA), 0.1M HCl, 5% (v/v) formic acid, and 1% (w/v) NaCl in the presence of PMSF 1 mM at a seed/solvent ratio of 1:10. An anion-exchange DEAE-Sepharose column was employed for further separation of peptides. This column was equilibrated and initially eluted with 0.1 M Tris-HCl, pH 8.0, followed by elution with the same buffer containing 1 M NaCl. The toxic fraction was detected in fraction D1, which presented peptides with molecular mass between 8 and 16 kDa. This fraction inhibited in, approximately, 61 and 77% the acidification of the medium from Saccharomyces cerevisiae and Candida albicans cells, respectively, when stimulated by glucose. We also observed the effect of this fraction on the growth of the yeasts S. cerevisiae, C. albicans, Candida tropicalis and Pichia membranifaciens, presented a higher toxicity for the yeast C. albicans.

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