

Prospection of Antibacterial Activity in Extracts of the Therapeutic Plant *Plantago major* L. (Tanchagem)

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The antimicrobial peptides (AMPS) are molecules with great structural diversity, and ubiquitous in nature. Many of them have broad-spectrum antimicrobial action, acting at low concentration and low environmental impact. Therapeutic plants, especially healing ones, may represent a source of interest for the isolation of AMPS for biotechnological use. This work aimed the prospection of AMPS in leaves of *Plantago major* L. (tanchagem) and the evaluation of the antibacterial activity against the plant-pathogenic bacteria *Ralstonia solanacearum*, *Clavibacter michiganensis* ssp. *michiganensis*, *Xanthomonas axonopodis* pv. *phaseoli*, *Pseudomonas syringae* pv. *tomato* and *Erwinia carotovora* ssp. *carotovora*. The soluble extracts (ES) and cell-wall extracts (CWE) from the leaves of *Plantago major* L. were fractionated by ultrafiltration (1, 10, and 30 kDa) and partially purified by precipitation with ammonium sulfate (35-75% sat.), following anionic-exchange and hydrophobic chromatographies. The fractions obtained were: ES1-10kDa, ES10-30kDa, ES>30kDa, and EP1-10kDa, EP10-30kDa, EP>30kDa. The fraction ES 1-10 kDa showed the best results against *R. solanacearum* and *C. michiganensis* ssp. *michiganensis*, with inhibitions of growth of 39.9% and 67.5%, respectively. The fractions obtained after chromatography showed inhibition of 43.4% and 27.7% of *R. solanacearum* and *Pseudomonas syringae* pv. *Tomato* growth, respectively, suggesting the presence of antimicrobial peptides, considering molecular mass obtained and purification procedure employed. Evaluation of antibacterial activity showed that the extracts of *Plantago major* L. have a potential for application as defense compounds in agribusiness. New antimicrobial tests are being developed and the extracts are being purified for subsequent identification of AMPS.

Keywords: Antimicrobial peptides, Peptide purification, *Plantago major* L.
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