Antibacterial activity evaluation of a water soluble lectin from *Moringa oleifera* seeds (WSMoL)

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Bacteria have medical importance for causing severe infections in humans. The production of bacterial hydrolytic enzymes that inactivate antimicrobial compounds, addition of chemical groups to antibiotics, removal of the antibiotic from inside the cell by efflux pumps present in its membrane and reduced affinity of the drug for the target cell via genetic modification are mechanisms involved with bacterial resistance. Lectins, carbohydrate recognition proteins, have been described as potential antimicrobial agents. This work reports the evaluation of a water-soluble lectin from *Moringa oleifera* seeds (WSMoL) against bacteria that cause hospital infections. WSMoL was purified by previously established protocol. Mature seeds of *M. oleifera* were crushed and homogenized in distilled water under constant stirring (16 h at 4 °C) to obtain the crude extract (10%); that was treated with ammonium sulfate solution at 60% saturation. The precipitated proteins were collected after centrifugation (3000 g, 15 min, 4 °C) and dissolved in 0.15 M NaCl. The fraction (0–60F; 50 mg of proteins) was applied to a chitin column (7.5×1.5 cm) equilibrated with 0.15 M NaCl (0.3 ml/min flow rate). The adsorbed protein (WSMoL) was eluted with 1.0 M acetic acid. The minimum inhibitory concentration (MIC), bactericidal (MBC) and minimum agglutination concentration (MAC) were determined. WSMoL showed high specific hemagglutinating activity (SHA of 1,427) and inhibited the growth of *Bacillus* sp., *Micrococcus luteus*, *Pseudomonas aeruginosa* and *Pseudomonas stutzeri* with MIC of 5.2, 41.75, 167 and 5.2 µg mL⁻¹, respectively. The lectin showed bactericidal effect only to *Bacillus* sp. (MBC 167 mg mL⁻¹) and agglutinated all assayed bacterial strains. These results indicate WSMoL as a potential tool in controlling pathogenic bacteria.

Word Keys: *Moringa oleifera*; seeds; antibacterial activity; pathogenic bacteria.
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