Lectin from *Moringa oleifera* Seeds (WSMoL) Interferes with Growth, Survival and Cell Permeability of Corrosive and Pathogenic Bacteria

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INTRODUCTION: Bacteria are simple prokaryotic organisms able to adapting to the most varied types of habitat; could be associated with biocorrosion and pathogenicity. Various mechanisms of bacterial resistance to antibiotics and biocides are described. Lectins, carbohydrate-binding proteins, have been utilized as antibacterial agents. **OBJECTIVE:** To evaluate the antibacterial activity of a water-soluble *Moringa oleifera* seed lectin (WSMoL) by investigating its effect on growth, survival and cell permeability of corrosive and pathogenic bacteria. In addition, the effect of lectin on membrane integrity of most sensitive species was evaluated. **MATERIAL AND METHODS:** WSMoL was isolated according to a previously defined protocol. MIC, MBC and MAC determinations were performed against *Bacillus* sp., *Bacillus cereus*, *B. pumillus*, *B. megaterium*, *Micrococcus* sp., *Pseudomonas* sp., *Pseudomonas fluorescens*, *P. stutzeri* and *Serratia marcescens*. It were also established for treated and untreated cells the bacterial grown curves (6h), protein leakage from bacteria cells (24h) and fluorescence confocal microscopy of *S. marcescens*. **RESULTS AND DISCUSSION**: WSMoL inhibited the bacterial growth, induced agglutination and promoted the leakage of proteins from cells of all strains. Bactericidal effect was detected against *Bacillus* sp., *B. pumillus*, *B. megaterium*, *P. fluorescens* and *S. marcescens*. The bacteriostatic effect of lectin was evident with only 6h of incubation. Fluorescence microscopy of *S. marcescens* showed that WSMoL caused loss of cell integrity and suggested an anti-biofilm activity of the lectin. **CONCLUSION:** The study indicates that WSMoL was active against bacteria that cause serious problems in both industrial and health sectors. WSMoL effects includes growth inhibition and cell permeability. The lectin also interfered with membrane integrity of *S. marcescens*, the most sensitive species.

Keywords: *Moringa oleifera*; lectin; antibacterial activity.

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