

Novel in-vitro antimicrobial activity of Vigna radiata (L.)R. Wilczek against highly resistant bacterial and fungal pathogens.

ABSTRACT

The ever rising resistant bacteria and fungi resulted in finding novel antimicrobial sources and agents. Studies confirmed that mung beans have increased phenolic compounds and enhanced defenses during germination. We hypothesized that antimicrobial activities might be found in sprouts of mung beans (MBS), or *Vigna radiata* (L.) R. Wilczek. The screening method was conducted using disc diffusion assay against 12 gram negative and positive bacteria, including multiple drug resistant (MDR) bacteria and 12 fungi. It was followed by the evaluation of the minimum inhibitory concentration and the minimum bactericidal concentration or the minimum fungicidal concentration. The screening results revealed potential antibacterial and antifungal activities by MBS extract against 11 out of 12 bacteria and 2 out of 10 fungi including remarkable antimicrobial activity against highly infectious MDR bugs such as Methicilline-resistant *Staphylococcus aureus*, MDR *Escherichia coli* O157:H7, MDR *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *S. aureus*, and *Salmonella Typhimurium* as well as against human fungal pathogens, *Trichophyton rubrum* and *Trichoderma harzianum*. The potential antimicrobial activity of MBS reflects effective quality and quantity of polyphenolic compounds present after bean germination. This unprecedented study showed that MBS extract is a potential source for novel antimicrobials that are inexpensive and readily available at a large scale for pharmaceutical companies.

Keyword: Antimicrobial; Antifungal; Multiple drug resistant; Mung bean sprout; Polyphenols.