

Elemental Composition, Phytochemical Screening and Antibacterial Activity of *Aegle marmelos* (L.) Correa (ဥချွန်)

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Abstract

The use of herbs and medicinal plants is universal phenomenon. Traditional medicines have been applied 75% of population in developing and developed countries for primary health care needs estimated by World Health Organization. Many people in Myanmar use traditional medicines due to affordable and widely available. Different parts of plant may absorb and accumulate minerals, which are essential to human nutrition. Trace elements play pivotal role for human and against various diseases. Microorganisms are closely associated with the health and welfare of human beings. The aim of present study was to determine macrominerals; (Ca, Mg, Na, K) and microminerals; (Cu, Fe, Mn, Zn) content, phytochemical constituents and antibacterial activity of *Aegle marmelos* L. Correa (Ok-shit). Atomic absorption spectrophotometer was used for determination of elemental compositions. Phytochemical constituents present in Ok-shit were carried out according to Harbone J.B (1998) and Raaman (2006). The antibacterial activity was determined on three selected organisms (*Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Escherichia Coli*), by applying agar-well diffusion technique, according to modified Kirby and Bauer method (WHO, 2003). Broth dilution method was used for determination of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC). The content of macrominerals and microminerals were within permissible limit of vegetables set by Ajasa, 2004 and FAO/WHO, 2001, except calcium. Alkaloids, α amino acids, carbohydrates, flavonoids, glycosides, phenols, protein, reducing sugar, saponins and tannins were detected from Ok-shit leaves. Ok-shit extracts showed zone inhibition of 20 mm –25 mm, 19 mm – 25 mm and 18 mm –20 mm against on *S. aureus*, *P. aeruginosa* and *E. coli* respectively. MBC of Ok-shit extracts was observed in the range from 1 -7 mg/ml. MIC of Ok-shit extracts was observed in the range from 2 -8 mg/ml for selected organisms. Thus, Ok-shit has strong antibacterial activity. These results provide scientific information about elemental composition & antibacterial activity of *Aegle marmelos* (L.) and also applied as an alternative

medicine for antibiotics resistance infectious diseases. These findings revealed that, Ok-shit has potential to provide nutrients for human beings, preventive properties against selected pathogens and helpful for many herbal medicine user using Ok-shit for different types of ailments.

Key Words: Antibacterial activity, Macrominerals, Microminerals, *Aegle marmelos* L. Correa