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Antibacterial Activity of Crude Extracted Betel Vine Leaf Against *Salmonella* spp.

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Abstract

Betel leaf is an important component of daily consumption in Asia and Africa. Betel leaf constituents volatile oil (cadinene, carvacrol, caryophyllene, chavitbetol, chavicol, 1,8-cineole, estragole, eugenol, terpinyl acetate, etc.), amino acids, pyridine alkaloids, sitosterols, stigmasterol, tannins, vitamin C, oxalic acid, d(+)malic acid, n-hentriacontane, n-pentatriacontane and inorganic elements (fluoride, iron). The volatile oil from the betel leaf extract is antiseptic and antioxidant. The aim of this study was to determine the *in vitro* antibacterial activities of crude extracted betel vine leaf against *Salmonella* spp. A total of 300 g crude extract was extracted from 2 kg fresh betel vine leaf (15 % yield) by 95 % ethanol. Fourty eight samples of pig feces (n=16), pen floor (n=3), sewage (n=3), water (n=2) and pork (n=24) were treated with several concentration (0.0061 to 6.25 μl ml^{-1}) of the betel vine leaf extracted in Mueller Hinton Agar (MHA). The minimal inhibition concentration (MIC) of the extracted was lowest in 4.2 % of pork samples (0.0244 μl ml^{-1} for *S. rissen*) whereas highest in 18.75 % of fecal samples (1.5625 μl ml^{-1} for *S. krefold*). At 0.3906 μl ml^{-1} showed the antibacterial activities of 2 strain *Salmonella spp.* (*S. rissen*, *S. lagos*) in 45.8 % of pork samples and at 0.7812 μl ml^{-1} showed the broad antibacterial activities of 8 strain *Salmonella* spp. (*S. rissen*, *S. lagos* , *S. krefold*, *S. weltevreden*, *S. Stanley*, *S. derdy*, *S. salamae*, *S. bovismorbifican*) in all type of samples (100 % of sewage, pen floor and water, 81.25 % of feces, 50 % of pork). We further intend to determine effective constituents in betel leaf and use the crude extracted as feed supplement in weaned pig diets for controlling diarrheal bacteria.

Keywords: Antibacterial activity, crude extracted betel vine, *Salmonella spp.*

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