Anti-microbial activity of Betel leaves

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This paper describes the preliminary study carried out to determine the anti-microbial effects of water and ethanol extracts of betel leaves and the residues obtained after water and ethanol extraction incorporated into the media on the growth of *Klebsiella pneumoniae, Escherichia coli, Staphylococcus aureus. Pseudomonas aeruginosa, Proteus vulgaris, Bacillus licheniformis, Saccharomyces cerevisiae, Aspergillus niger and Aspergillus oryzae.* The growths of the organisms were monitored by taking viable cell count at fixed time intervals (18h for bacteria and yeast, and 36h for fungi). The bacteria and yeast were cultured in nutrient agar medium while fungi were cultured in potato dextrose agar medium. Different amount of betel residues obtained after water and ethanol extraction (0.2, 0.5, 1.0, 2.0 and 3.0g/100ml media) were mixed with the above media separately. As control plates containing nutrient agar or potato dextrose agar media were prepared. When the betel residue obtained after water extraction (0.2g/100ml) was incorporated into the medium the relative viability (Relative viability (%) = number of colonies present in residue containing medium / number of colonies present in the control medium X 100) of *E.coli* and *B.licheniformis* decreased to 43.7 and 20.3 % respectively. When the betel residue obtained after water extraction (0.5g/100ml) was incorporated into the media, the relative viability were 30.4, 7.1 and 35% for *S. aureus P. vulgaris, S. cerevisiae* respectively. When the betel residue obtained after water extraction 1.0g/100ml was incorporated into the media, the relative viability of *K. pneumoniae, P. aeruginosa, A. niger and A. oryzae* decreased to 31, 44, 11 and 4% respectively. Whereas when betel residue obtained after ethanol (1.5g/100ml) was incorporated into the medium the relative viability for *P. aeruginosa* decreased to 13% and when 2g/100ml was incorporated into the medium the relative viability of *S. aureus* and *A.niger* decreased to 28.3 and 83% respectively. When 3g/100ml betel residue obtained after ethanol extraction was incorporated into the medium, the relative viability decreased to 6.4%. These results showed that betel contain some substances, which inhibit the growth of various microorganisms.