Ethnobotanical Survey, Antimicrobial Efficacy and Preliminary Phytochemical Screening of Selected Anti-Diarrhoeal Medicinal Plants Used by the Samburu Community, Wamba, Samburu District, Kenya

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Despite advances in understanding of the causes, treatment and prevention of diarrhoeal diseases an estimated 4.6 million people die from diarrhoeal diseases every year. Diarrhoea can either be acute or chronic, with acute diarrhoea being the most common form. The main agents of diarrhoeal diseases include viruses like rotavirus, bacteria such as Enterobacteria e.t.c and parasitic agents like Cryptosporidium. The disease has been found to attack mostly the children who are below the age of 5 years old and the elderly. It is also a major opportunistic infection amongst the HIV/AIDS patients. Oral rehydration therapy (ORT), antibiotics and medicinal plants have been used as remedials. But antibiotics have been found to possess antimicrobial resistance hence need for search of new drugs. Plants have been found to have active compounds (phytochemicals) which have antidiarrhoreal activity. Therefore this study evaluated the efficacy of the antidiarrhoeal plants used by the Samburu community. By use of simple questionnaires a survey was carried out that was targeting the Samburu informants and herbalists on the common antidiarrhoeal plants they use. Thirty three antidiarrhoeal plants were collected, dried, chopped, ground by the laboratory grinding miller. Voucher specimens were prepared and deposited at the Kenyatta University herbarium. Extraction of the selected medicinal plants was done by use of methanol (solvent) and then screened by use of the disk diffusion method against the selected microorganisms that were collected from Kenyatta National Hospital. There was significant difference of the means of the zones of inhibition of the Stapylococcus aureas, Salmonella typhi and Pseudomonas aeruginosa at P ≤ 0.01 except in Escherichia coli, Bacillus subtilis and Candida albicans that showed no significant difference even at P ≤ 0.05. No activity was observed on A. flavus, Aspergillus niger, Penicillium spp, and Fusarium lateritium. Pseudomonas aeruginosa was affected by most plant extracts in terms of zones of inhibition. The The MICs and the MBCs of the extracts were determined by use of the microtitre plate method with Acacia ethaica, Acacia nilotica, Acacia tortilis, Albizia anthelmitica, Clerodendrum myriacoides, Plumbago dawei & Thylachium africanum extracts.
showing good MICS and MBCS results of 9.38-18.75 (mg/ml) in most test cultures except *C. albicans* that seemed to be insensitive to any extract. The extracts produced high MICs and MBCs againsts *P. aeruginosa* and *S. aureas*. Preliminary phytochemical screening of tannins, terpenoids, cardiac glycosides, alkaloids, and saponins was also carried out. Tannins were the most abundant phytochemicals present that were found to be present in most plant extracts. Generally the Gram negative isolates were more affected than the Gram positive isolates hence the activity of the extracts can not be ascribed to the cell wall properties but to other factors like the sensitivity of the test organism to the extracts, the diffusion rate of the extract e.t.c. For the fungi isolates the activity of the extracts was very low and thus it can be ascribed to the cell wall properties that may have made the extracts not to diffuse into the test micro-organisms. Also presence of different phytochemicals may explain the activity of the extracts whereby they can be offering some synergism/additive or antagonism activity against the test isolates. More work needs to be done on the highly active extracts like *Acacia nilotica* and *Plumbago dawei*. Thus the results obtained clearly back the use of the medicinal plants selected from the community as they showed good activity against the test cultures.