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In vitro ANTIMICROBIAL EFFICACY OF FIVE *Centella asiatica* (L.) MORPHOTYPES IN SRI LANKA

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ABSTRACT

Centella asiatica (L.) is a herb with pharmacological activities that are associated with the secondary metabolites like triterpenes; asiaticoside, madecassoside, asiatic acid and madecassic acid. It also possesses antimicrobial activity due to presence of tannins, flavonoids, saponins and essential oils. Although Antimicrobial potential of *C. asiatica* is well known the antimicrobial activity of different varieties of the species is not documented. Therefore, three morphotypes (G3, G8, G12) identified in Sri Lanka and two previously unreported morphotypes (designated as G13 and G14) grown under homogeneous conditions were evaluated for their antimicrobial efficacy by Kirby Bauer method. Sequential extracts of Hexane (HE) and Methanol (ME) of shoots were evaluated against eight selected human pathogens; four bacteria and four *Candida* spp. There was no observable variation of antimicrobial activity of HE extracts among the detected morphotypes. ME fraction of G8 inhibited the growth of both Gram positive (*Staphylococcus aureus,* ATCC25923), *Bacillus cereus,* ATCC11778) and Gram-negative (*Escherichia coli,* ATCC25922) bacteria while that of the rest inhibited only the growth of Gram positive bacteria tested. Additionally, the ME fraction of G8 also showed a significantly higher ($p<0.05$) anti-microbial activity against a selected pathogen, *S. aureus;* compared to that of other morphotypes as assessed by the diameter of zone of inhibition (1.4833$\pm$0.0753 cm). According to CLSI (Clinical and Laboratory Standard Institute) interpretive standards *S. aureus* displayed a moderate susceptibility to crude ME of G8 compared to positive control; chloramphenicol. Extractable yield of ME of G8, however was lower compared to that of several other morphotypes. The contrasting and consistent variation in the antimicrobial efficacy of ME of G8 could probably due to the differences in metabolites composition, thus identified as a superior morphotype in this regard.

Keywords: antimicrobial activity, *C. asiatica*, extractable yield, morphotypes, Kirby Bauer test