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Identification of plant extract for ecofriendly development of phytoacaricides for controlling chemical resistant tick infestations in animals

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The cattle tick, *Rhipicephalus (Boophilus) microplus* is one of the most economically important tick species throughout tropical and sub-tropical countries and damaging the livestock industries. Use of synthetic chemicals is the backbone to control tick infestations. However, ticks have developed resistance to most of the available insecticides and there is an urgent need to develop ecofriendly alternatives to chemicals. In the present study, plant extracts were screened and three herbal extracts were identified as eco-friendly antitick products.

Different parts of selected plants were subjected to solvent guided extraction and biological activity was screened against reference susceptible IVRI-1 line of R. (B.) *microplus* using adult immersion test (AIT). Amongst the 36 plant extracts, only three extracts prepared from Acorus calamus rhizome, *Ricinus communis* leaf and *Semecarpus anacardium* fruits showed acaricidal activity. Probit analysis of dose response data of A. *calamus*, R. *communis* and S. *anacardium* extracts determined the LC85 values of 9.14, 9.68 and 10.5%, respectively. The extracts of R. *communis* and S. *anacardium* were also found efficacious against multi-acaricide resistant IVRI-V tick line of R.(B.) microplus showing 53.3 ± 6.7 and 73.3 ± 3.3% mortality. The identified extracts affected the reproductive physiology of treated ticks significantly inhibiting the oviposition. Both the extracts were found safe in rabbit model at 5x concentration and no allergic reaction, staining, pruritis, and erythematic lesion were noted. *In vivo* efficacy of A. *calamus* and R. *communis* also confirmed the efficacy upto 40.6 and 59.9%, respectively, during 1st larval challenge.

The HPTLC finger print profile of A. *calamus* revealed the presence of α-Asarone as a marker compound while R. *communis* leaf extract under λ_{max}-254 showed quercetin, gallic acid, flavone and kaempferol which seemed to have better acaricidal action in cumulative form against R.(B.) microplus. The HPTLC profile of S. anacardium extract showed catechol as a marker compound under UV-254 nm. Besides antitick properties, the antioxidant property of R. *communis* and S. *anacardium* extracts was determined by DPPH (2, 2-Diphenyl-1-picrylhydrazyl) radical scavenging ability test. The possibility of using the herbal extracts as an alternative to chemical acaricides for the control of cattle ticks is discussed.

Development and Initial Standardisation of Ayurveda Child Personality Inventory

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Background: Ayurveda inventories for prakrti (constitution) and personality have been developed and validated for adults. Children however require different categories of quarter and questions. The objective of the study was to develop and standardize an inventory to assess the prakrti of the children, and to compare with CPQ.

Method: Design of the study was descriptive type .Sampling design was purposive sampling. The 136-item Ayurveda child personality inventory scale was developed on the basis of translation of 158 Sanskrit verses describing vātaja (A), *pittaja* (B) and *kaphaja prakrti* (C) characterstics and by taking the opinions of experts (ten Āyurveda experts and three psychologists who helped in judging the items and assessed item reduction process and translations of Samkrita verses ,also judged questions in scale). Study was carried out in Maxwell public school, Bangalore. The scale was administered on parents of 230 children of the age group 6-12 years. CPQ was administered on 30 children of the age group 8-12 years for the purpose to correlate Ayurveda and Western concepts.

Results: The Ayurveda child personality inventory (ACPI) was associated with excellent internal consistency. The Cronbach's alpha for *Vataja,Pittaja*, and *Kaphaja* scales were 0.77, 0.55 and 0.84 respectively. And the Split-Half reliability scores were 0.66.0.39 and 0.84 respectively. Items of subscales loaded highly (above 0.3) on seven factors extracted. . Scores on Vātaja Pittaja and Kaphaja scales were inversely correlated. Scores on Subscales of ACPI correlated significantly with subscales of CPQ. .(Children Personality Questionnaire values ranging from 0.24 to 0.81)) indicates that eastern and western psychology concept have good correspondence.

Conclusions: The prakrti of the children can be measured reliably by this instrument. Scores on V,P scale showed good association with anxiety primary scale of CPQ. However, present study has not discussed criterion related validity, development of norms.