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Bioprospective role of ursolic acid and solasodineagainst neglected tropical johne's disease of domestic livestock caused by the infection of mycobacteriumavium subspecies paratuberculosis

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Bioprospective role of Ursolic acid and SolasodineAgainst Neglected Tropical Johne's disease of domestic livestock caused by theinfection of Mycobacterium avium subspecies paratuberculosis: Paratuberculosis (Johne's disease) is caused by Mycobacterium avium subspecies paratuberculosis (MAP), highly resistant, extremely fastidious, gram-positive acid-fast bacilli. Disease is characterized by reduced productivity, loss in body weights with (cattle and buffaloes) or without (goats and sheep) diarrhea. Animals acquire infection in early stages(Prenatal) through semen or in-utero or with colostrum and milk or from the environment after birth by fecal-oral route. High endemicity of MAP in domestic livestock leads to high propagation in herds and flocks. MAP being highly resistant in hardly bacilli, needs multi drug therapy for long time (7-8 months), which is not cost-effective and runs over the cost of animals. The present pilot study aims to evaluate the in-vitro anti- mycobacterial activity, Anti-inflammatory activity of Ursolic acid & Solasodine from Ocimum sanctum and Solanum xanthocarpum plants. Crude aqueous, hydro- alcoholic and alcoholic extracts of the said plants was prepared by cold maceration and isolation of bioactive compounds using by fractionations. Resazurin microtiter plate assay (REMA) and heat induced haemolysis (HIH) was performed to investigate the activity of two bioactive compounds against MAP. Experimental studies confirmed their anti-MAP potential of Ursolic acid & Solasodine was found to be the best bioactive compound's (BAC) inhibiting the bacilli. The activity was expressed as MIC50 values of Ursolic acid (12µg/mL) & Solasodine (60 µg/mL) and IC50 values of Ursolic acid (51.2%) & Solasodine (89.5%) .This is the first attempt suggesting potential therapeutic value against highly pathogenic native 'S 5' strain of MAP giving a ray of hope for development of an herbal anti-MAP medication for domestic livestock which will pave way for therapy in human beings, since, it is a major infection associated with autoimmune disorders.

Biography

Dr.Shoor Vir Singh has completed his PhD at the age of 42 years from Veterinary College Mathura(CSA University of Agriculture & Technology., Kanpur) and He is the Principal Scientist and Head of ICAR-Central Institute for Research on Goats, Makhdoom, Farah, Mathura, UP. He is currently working the Professor & Head Dept. of Biotechnology, GLA University, Mathura, UP. He has published more than >250 papers in reputed journals and International Awards: 12; National Awards: 24; Publications (Numbers only): 250; Patents : 03; Projects (Ongoing): 07; Projects (Completed): 13; Abstracts: 100; Book /Chapters / Manuals: 22; Conference Proceeding Papers, Popular Articles, Bulletins: 87.