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Discovery-driven ethnopharmacology approach for bio prospecting of plant-derived molecules against rheumatoid arthritis

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Ethnopharmacology is a discipline that links research on medicinal plants with ethno-directed studies and evidence-based uses. It has often been associated with drug discovery researches. For most of the investigated natural bioactive molecules, the mechanism of action is unknown or merely assumed and specific structure activity relationships have rarely been determined. This urged the need for polypharmacology approach as a new trend of research focuses on pharmaceutical agents that act on multiple targets or disease pathways including complex herbal mixtures and multi-compound extracts. This approach showed positive results when applied for the search and treatment of diseases related to multifactorial causes such as chronic and degenerative ailments, mostly due to synergistic pharmacological effects. Rheumatoid arthritis is an autoimmune disease characterized by chronic inflammation of joints leading to progressive and irreversible joint destruction. This is partially caused by an aggressive invasion of synovial tissue, called pannus, to local articular structure. Mangrove plants are specialized plants that grow in the tidal coasts of tropic and sub tropic regions of the world. Mangroves exist under stressful conditions such as violent environments, high concentration of moisture, high and low tides of water, and abundant living microorganisms and insects. Due to this special growth environment, mangroves produce diverse group of metabolic substances with wide range of biological activities and represent a wide domain for several biological applications. Previous findings indicated the potential biological activities of mangrove metabolites. Some of these molecules showed anti-inflammatory properties with mechanism of action against cyclooxygenase and the cytokines mediator IL-1β (Interleukin-1 β).These factors are very much associated with the progression of inflammation of joints and the proliferation of synovial fibroblasts. This talk highlights some of our efforts in the search for natural molecules that may contribute to the eradication of rheumatoid arthritis and related autoimmune diseases. The studied plants were selected based on their reported ethno pharmacological uses as curative agents for autoimmune related diseases.

Biography

Ibrahim M S Eldeen has completed his PhD in Medical Ethnobotany from University of KwaZulu Natal, South Africa. Currently, he is a Researcher at the Institute of Marine Biotechnology, University Malaysia Terengganu. His research is focused on bioefficacy of plant derived natural molecules as curative agents against rheumatoid arthritis and related autoimmune diseases. He is also interested in biosurfactant molecules produced by endophytic microorganism to see how these microbial-derived molecules regulate induced proliferation of synovial fibroblasts among other bioactivities. He has published number of articles in reputed journals and has been serving as a regular reviewer for some journals.

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