

Isolation and immunomodulatory potential of oryzanol from crude rice bran oil in experimental animal models

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Tumor mediated immunosuppression is the greatest challenge in cancer treatment. Harnessing the immune system to stimulate and increase the immunocompetence and immune defense systems in cancer patients is the major goal of immunotherapy. Many of the presently available immunomodulators are not free from side effects including fever, neutropenia, leucopenia and allergic reactions. Hence, there is an urgent need to evaluate the potential of natural products as adjuvants to counteract the side effects of modern therapy. Recently, there has been a surge of global interest pertaining to the beneficial effects of commercially important bioactive phytochemicals like oryzanols and tocopherols, obtained from crude rice bran oil. Therefore, the present study was undertaken to investigate the effect of oryzanol on cell mediated and humoral immunity in various experimental animal models. The effects on immune response were assessed using haemagglutinating antibody titre, delayed-type hypersensitivity response, carbon clearance test and cyclophosphamide-induced myelosuppression models in experimental animals, divided in groups such as control, control induced, oryzanol treated (25, 50 and 100 mg/kg p.o.) and vitamin-E (100mg/kg p.o., as a naturally occurring conventional dietary antioxidant) treated. The treatment with oryzanol and vitamin-E was given for 28 days except in the cyclophosphamide induced myelosuppression model (for 10 days). Oryzanol and vitamin-E evoked a significant increase in antibody titre values in the haemagglutination test and potentiated the delayed type hypersensitivity reaction induced by sheep red blood cells. Both the drugs significantly ameliorated the serological parameters in cyclophosphamide induced myelosuppression and showed an increase in phagocytic index in the carbon clearance assay.

Biography

Somsuvra B. Ghatak is currently pursuing his Ph.D. in Pharmacology at Nirma University, India. He has been awarded with the INSPIRE Fellowship by the Department of Science & Technology, Govt. of India, in 2010. He has received the Gold Medal for being the 'BEST STUDENT' of the Masters of Pharmacy program in 2008.