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Jobelyn® attenuates inflammatory responses and neurobehavioral deficits associated with complete Freund- adjuvant-induced arthritis in mice

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Rheumatoid arthritis (RA) is a chronic inflammatory disease which affects the physical and psychosocial wellbeing of the patients, it presents with symptoms of anxiety and depression when the victims realize the disorder has no cure. Drugs currently used for its treatment only provide palliative relief, hence, the need to search for new cure. Jobelyn® (JB), from Sorghum bicolor is a potent anti-oxidant and anti-inflammatory food supplement acclaimed to relieve arthritic pain. Thus, this study was designed to evaluate its effect on inflammatory, biochemical changes and neurobehavioural deficits associated with complete Freund-adjuvant (CFA) arthritic mice. The effect of JB (50, 100 and 200 mg/kg) on oedema, neurobehavioural deficits, levels of biomarkers of oxidative stress and inflammatory cytokines (tumor necrosis factor-alpha and interleukin-6) induced by 0.1 mL of CFA (10 mg/mL) was evaluated in male Swiss mice. Oral administration of JB (100 and 200 mg/kg) reduced inflammatory paw volume and reversed sensorimotor deficits induced by CFA. JB also reduced pain episodes, anxiety and depressive-like symptoms in CFA-mice. The increased level of oxidative stress in the joint and brain of CFA- mice was reduced by JB. It also decreased tumor necrosis factor-alpha and interleukin-6 levels induced by CFA in the joint tissue of mice. These findings suggest that Jobelyn® attenuates inflammatory responses induced by CFA in mice via inhibition of oxidative stress and release of inflammatory cytokines. The ability of JB to attenuate CFA-induced nociception, sensorimotor deficits and depressive-like symptom suggests it might be a beneficial therapy in patients with depressive arthritic conditions.

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