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Down-regulation of inflammatory mediators' gene expression in the liver, kidney, and pancreas of diabetic albino rats administered Asheitu Adams bitters

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The inflammatory response is essentially an immune response to infections, injuries, drugs, toxic compounds etc., in order to maintain tissue homeostasis under stressful conditions. However, if not regulated, it could result in increased concentrations of inflammatory mediators, which might lead to the occurrence of several chronic diseases, namely arthritis, diabetes, coronary diseases, neurological diseases, and cancer, among others via dysregulation of various signaling pathways. Asheitu Adams bitter (AAB) is a polyherbal medicine used as alternative therapy in the treatment of many ailments/diseases in Nigeria. This study was therefore conducted to comparatively investigate the effect of Asheitu Adams bitter on gene expressions of some inflammatory mediators in different tissues of diabetic albino rats. The animals were diabetes-induced using streptozotocin, and grouped into four groups of fives in addition to the non-diabetic control group consisting of five animals also. Groups four and five were orally administered AAB at 15mg/kg and 30mg/kg respectively, while group three were orally administered metformin (15mg/kg), and group one and two served as the non-diabetic and diabetic control respectively. The experiment lasted for twenty-five days before the animals were sacrificed and different tissues excised. Results showed that AAB down-regulated interleukins– IL-6, IL-1α, IL-1β, and monocyte chemoattractant protein-1 (MCP-1) genes in the kidney, liver, and pancreas but up-regulated IL-6, IL-1α, and IL-1β in intestinal crypt. Conclusively, AAB showed potentials for preventing chronic inflammation by down-regulating inflammatory mediators but could stimulate acute inflammation to maintain body homeostasis, which seems to be the route of administration dependent.

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