

## **Dietary Supplementation with Coula edulis B. Walnuts Prevents Diet-Induced Obesity and Insulin Resistance in Rats**

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**Abstract :** Background: Dietary supplement may potentially help to fight obesity and other metabolic disorders such as adipogenesis, insulin resistance, and inflammation. The present study aimed to test whether supplementation with African walnuts (Aw) could have an effect on adipogenesis and others dysfunctions associated with obesity in rats. Methods: Wistar rats were fed with standard diet (SD) or high-fat high-sucrose diet (HFS) and HFS with supplemented (HFS-Aw) for eight weeks. Results: HFS diet-induced body weight gain and increased fat mass compared to SD. In addition HFS-fed rats developed fasting hyperglycaemia and insulinaemia as well as insulin resistance. Aw supplementation in HFS rats had a protective effect against adipose tissues weigh gain but slightly against body weight gain and major study related disorders. This could be mainly due to decreased food intake dependently of effect in food intake in central nervous system, which decreased in HFS rats supplemented with African walnut compared to the HFS-diet group. Interestingly, African walnut supplementation induced a slight decrease of fasting glycaemia, insulinaemia and Nitric Oxide which could partially explain its minor protective effect against diet-induced insulin resistance. Additionally a decrease in hepatic TG and transaminases levels suggesting a protective effect against liver injury. Conclusion: Taken together these data suggested that supplementation of African walnut could be used to prevent adipose weight gain and related disorders on the other hand, minimally reduced insulin resistance.

**Keywords :** African walnut, dietary fiber, insulin resistance, oxidative stress

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