

# **The Potential Prophylactic Effect of Orange Peel Administration on Fatty Liver and Hyperlipidemia in an Animal Model of Diet Induced Obesity**

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## **Abstract**

CITRUS is an economically important fruit for Egypt. However, its peels generated by the juice industry are one of the major sources of agricultural wastes. Fermentation of those wastes causes many economic and environmental problems. Therefore, it is worthwhile to investigate ways to make use of this citrus waste. The present study aimed to assess the prophylactic role of orange peel on obesity, fatty liver changes and serum lipids profile in an experimental obesity model. Forty male albino mice were divided into four groups and fed respectively a chow normal diet (control group), normal diet supplemented with 5% w/w orange peel (ND+OP), high-fat diet (HF), and HF diet supplemented with 5% w/w orange peel (HF+OP) for 12 weeks . The animals were sacrificed at the 12th week of the experiment, the body weight, back and epididymal fat weights, also serum lipid profiles were measured. Liver specimens were subjected to histopathological examination. Results showed that: 1. Orange peel administration in mice fed high fat diet significantly reduced the total weight gain, epididymal and back fat weights as compared to HF control group. 2. Serum lipid concentrations were also significantly improved in the HF+ OP group than HF control group. 3. Histopathological examination of liver

specimens showed marked improvement of the fatty changes observed in high fat diet group.

These results suggest that orange peel administration could ameliorate obesity and related metabolic disorders in HF diet-induced obesity in mice.

Key words: Obesity, Orange peel, Hypelipidemia, Fatty liver

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