

# Food & Nutrition

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### Inclusion of molasses in a high fat, high sugar diet prevents the development of obesity in C57BL6/J mice

**Statement of the Problem:** One of the contributing factors for the current epidemic of obesity is the increased consumption of added sugar in the diet. Sugarcane accounts for 80% of the sugar production. Molasses, a byproduct of sugar production from sugarcane, is known rich in many bioactive compounds including flavonoids and phenylpropanoids. Here we show that inclusion of molasses in a high fat, high sugar diet protects mice from developing obesity.

**Methods:** Thirty-six 6-wk old male mice were assigned to one of 3 groups. Each group was fed either a high fat, high sugar diet (HFC), a HFC diet containing 10% molasses replacing 5% sugar and 5% cellulose (Mol-Sugar) or a HFC diet containing 10% molasses replacing 5% starch and 5% cellulose (Mol-Starch). Mice were maintained on these diets for 14 weeks and food intake and bodyweights were monitored weekly. At weeks 7 and 14, randomly selected mice were culled and body composition, plasma metabolites and tissue gene expression were measured.

**Findings:** Molasses groups gained significantly less bodyweight and had lower body fat. The effects of molasses on body fat content were greater in the Mol-Sugar group. Reduced body fat in the molasses groups was associated with an up-regulation of *SIK2* gene expression and a down-regulation of *ATF3* gene expression in adipose tissue. Circulating adiponectin levels were also elevated in the molasses groups.

**Conclusion & Significance:** Sugarcane molasses contain anti-obesity compounds and addition of these compounds to sugar containing food products may help prevent the development of obesity.

### Biography

Markandeya Jois has expertise in the prevention and treatment of obesity and metabolic syndrome. His research in this area employs animal models as well as clinical trials with particular emphasis on the role of food plants in disease prevention.

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