Metabolic Syndrome is seen as a global epidemic, being obesity and fat accumulation in the organs responsible for chronic inflammation. Bark extract of *Mangifera indica* is used in the treatment of metabolic disorders. Mangiferin is identified as the bioactive compound present in the extract. The study aimed evaluate the effect of mango leaf extract and mangiferin on the weight gain, food consumption and organ weights of wistar rats. The animals were divided into 3 groups (n = 8): G1 - cafeteria diet + DMSO, G2 - cafeteria diet + mango leaf extract and G3 - cafeteria diet + mangiferin. Concomitantly with cafeteria diet, the animals received extract and mangiferin by oral gavage, using DMSO as a vehicle for 5 days. Food intake and body weight were monitored daily. The animals were euthanized and the organs heart, liver, brain and adipose tissue were collected and weighed. There was no significant difference in weight gain, but the food intake of group G2 (76.94±9.93) showed statistically lower values compared to group G1 (117.88±17.26). The weights of organs were statistically different, being: adipose tissue, G1 (0.68±0.17) was higher than G2 (0.33±0.18) and G3 (0.41±0.09). Liver, G2 (3.94±0.42) was lower than G1 (4.79±0.42) and G3 (4.62±0.38). Heart, G2 (0.78±0.12) was lower than G1 (1.16±0.09) and G3 (1.09±0.11). Brain, G1 (1.79±0.09) was higher than G2 (1.61±0.03) and G3 (1.64±0.03). It follows that the mango leaf extract and mangiferin have potential in reducing fat tissue.