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EFFECT OF A NOVEL HYDROXYCITRIC ACID EXTRACT (HCA-SX) ON OXIDATIVE STRESS, INSULIN RESISTANCE AND BRAIN SEROTONIN LEVEL IN OBESE ZUCKER RATS

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Super CitriMax (HCA-SX) is a novel calcium/potassium salt of (–)-hydroxycitric acid extracted from the dried fruit rind of the plant *Garcinia cambogia*, which is commonly consumed worldwide as a dietary weight loss supplement. Here we wanted to test whether or not HCA-SX reduces insulin resistance in obese Zucker rats, an animal model of type II diabetes associated with increased oxidative stress. Also, we wanted to test in these animals whether HCA-SX modulates the levels of brain serotonin (5-HT) and neuropeptide Y (NPY), which are known to either suppress or enhance appetite, respectively. Male Zucker rats (4-5 week old) were supplemented with vehicle (control) and HCA-SX (200 mg/kg/day in drinking water) separately for 6-7 weeks. Oxidative stress markers such as malondialdehyde (MDA), protein carbonyl (DNPH) and protein tyrosine nitration (tyr-NO₂) were measured in liver and kidney tissues using biochemical and immunoblotting techniques. The levels of MDA, DNPH and tyr-NO₂ were decreased in liver and kidney in HCA-SX-supplemented compared to control rats. Further, HCA-SX supplementation lowered fasting plasma insulin by 25% and triglyceride levels by 17%. Also, insulin resistance decreased 16% in HCA-SX-supplemented rats. Moreover, the levels of 5-HT and norepinephrine increased, while those of dopamine and epinephrine decreased in brain cortex of HCA-SX-treated compared to control rats. We conclude that HCA-SX may prove to be beneficial in reducing oxidative stress and insulin resistance, as well as 5-HT-mediated suppression of appetite in obesity.