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Effect of dietary chitosan extracted from carapace of freshwater crab *Sartoriana spinigera* on body weight, liver weight and food intake of hyper-cholesterolemic albino rats

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Obesity may be defined as a condition where over accumulation of fat occurs in adipocytes that might have a negative effect on one's health. Excess body weight due to uncontrolled eating habits leads to increased risk of many diseases. Treatment of obesity is very costly, therefore, the present society demands for medicines of natural origin that can cure, rather prevent obesity from developing. Chitosan is one such natural zoo-therapeutic medicine that is found in the exoskeleton of arthropods, crustaceans. Chitosan, a cationic biopolymer has affinity towards anionic fatty acids and does not allow them to get deposited in the body tissues and organs. In this experiment, Chitosan was extracted from carapace of *Sartoriana spinigera,* a locally found freshwater crab of Jharkhand, India. The obtained chitosan was characterized by FTIR and degree of de-acetylation was found to be 78.53%. 20 albino rats were divided into 4 groups: Group-A (normal diet), Group-B (high fat diet), Group-C (high fat diet+5% chitosan) and Group-D (high fat diet+5% synthetic hypo-lipidemic drug). Parameters of body weight, liver weight and food intake in all groups were measured after 30 days. Statistical analysis by student's t test revealed that Group-C fed with chitosan showed lower body weight gain than Group-B at 1% significance. Statistical analysis also showed that average food intake of Group-C was least amongst all groups and was significantly lower than that of Group-B at 0.1%. The final liver weight of rats was also found to be significantly lower in Group-C than Group-B at 0.1% level. Ultra-structural studies of hepatocytes of different groups also confirmed that chitosan fed rats showed curing of pathological deformities observed in HFD fed rats. The findings confirm that chitosan causes satiety and decreases body weight gain and liver weight, thereby preventing obesity. Thus, chitosan extracted from *Sartoriana spinigera* should be encouraged as medicines against obesity.

Biography

Shiny E C Kachhap is currently pursuing her PhD in Zoology with special interest in the use of natural zoo-therapeutic sources that are ethno-biologically used by tribal of Jharkhand, India and to establish the scientific significance of medicines acquired from such sources so as to acknowledge the society about utilization of locally found species and encouraging the culture of such species that can financially support the farmers and cultures of the area. Attaining biopolymers from animal sources and determining their use is also her interest of study. She is currently an Assistant Professor and has been contributing in teaching for more than 2 years.

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