



## Biological synthesis of silver nanoparticles from marine alga *Colpomenia sinuosa* and its in vitro anti-diabetic activity

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### ABSTRACT

Diabetes is a clinical syndrome characterized by hyperglycemia due to absolute or relative deficiency of insulin. The intestinal digestive enzymes alpha glucosidase and alpha amylase plays a key role in carbohydrate digestion, one main anti-diabetic approach is to reduce the post prandial glucose level in blood by inhibition of  $\alpha$ -glucosidase and  $\alpha$ -amylase enzymes. The synthesis of silver nanoparticles is an active area of application research in nanotechnology. Biological means by using plants, algae, fungi, bacteria are been employed for the production of low-cost, energy efficient, and non-toxic silver nanoparticles. Silver nanoparticles were prepared from marine alga *Colpomenia sinuosa* by green synthesis method and the characterization were determined using various techniques like UV - Nano photometer, XRD, FT-IR and SEM. In the present study antidiabetic activity was studied from the biosynthesis of silver nanoparticles from the marine brown alga *Colpomenia sinuosa*. The assay results of silver nanoparticles showed dose dependent significantly ( $P < 0.005$ ) increase in percentage inhibitory activity against  $\alpha$ -amylase and  $\alpha$ -glucosidase enzymes.

**KEYWORDS:** *Colpomenia sinuosa*, Antidiabetic activity,  $\alpha$ -glucosidase,  $\alpha$ -amylase, silver nanoparticle