

**PARTIAL PURIFICATION OF α - AMYLASE INHIBITOR/S FROM
SYZYGIUM CUMINI LEAVES**

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Pancreatic α -amylase is essential to break down starch into oligosaccharides and disaccharides in the intestine. Activity of amylase is interrelated with post prandial blood glucose level and insulin action. Inhibition of α -amylase is useful to reduce post prandial blood glucose level in order to control diabetes and obesity. Therefore, finding a new α -amylase inhibitory drug with minimum side effects is very important with the modern lifestyle and dietary habits. *Syzygium cumini* (SC) ('Madan' in Sinhala) is well known for its medicinal properties in Sri Lanka. Its seeds, bark and leaves are used for antidiabetic therapy. Previously we demonstrated high amylase inhibitory activity in SC leaves. The objective of the present study was to partially purify α -amylase inhibitor/s from the SC leaves.

Plant parts were collected from Moratuwa and authenticated at the National Herbarium, Peradeniya. A crude methanol extract was prepared from SC leaf using a sonicator and a rotary evaporator. The crude extract was subjected to solvent fractionation using hexane, methanol, ethyl acetate and water. The inhibitory activity of α -amylase of the crude methanol extract and partially purified fractions was analyzed using porcine pancreatic α -amylase and potato starch. Fractions other than the hexane fraction were analyzed for the presence of terpenoids, phytosterols, alkaloids, reducing sugars, saponins, flavanoids and tannins.

A very high α -amylase inhibitory activity was observed (93.66%) in crude methanol extract of SC leaf at 1 mg/ml as observed previously. Mean percentages of amylase inhibitory activities found in hexane, methanol fraction (1), methanol fraction (2), ethyl acetate and water fractions of SC leaf were, 11.14%, 92.7%, 97.25%, 36.58% and 93.8%, respectively at 1 mg/ml. IC₅₀ values for amylase inhibitory activity of crude extract, hexane fraction, methanol fraction (1), methanol fraction (2), ethyl acetate fraction and water fraction were, 20, >2000, 160, 12.5, 1750 and 75 μ g/ml, respectively. A very high amylase inhibitory activity was recovered in methanol fraction (1), methanol fraction (2) and water fraction. There was no considerable amylase inhibitory activity recovered in hexane and ethyl acetate fractions. Phytochemical analysis showed that fractions with high amylase inhibitory activity contain flavanoids and tannins. Further studies are in progress to purify the amylase inhibitors.

In conclusion, we have partially purified amylase inhibitor/s from SC leaves using solvent fractionation. Our findings show that the amylase inhibitor/s is/are polar in nature and most likely to be a flavanoid or a tannin.

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