

Analysis of Chemical Properties and α -Amylase Inhibition of Selected Medicinal Plants for the Development of Herbal Tea

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Herbal medicines are widely used around the world because of their safety, health benefits and very less or no side effects. Further, it's known that, herbs have high content of bioactive compounds which are produced in plants through secondary metabolism. From the ancient time, the natural remedies in Siddha medicine are used to cure the non-contagious diseases such as cancer, diabetes, asthma etc. However, young generation is reluctant towards herbal remedies as there are not much scientific evidences to prove their benefits. The present study attempted to identify the chemical properties and α -amylase inhibition of selected herbs namely *Solanum trilobatum*, *Ocimum tenuiflorum*, *Cardiospermum halicacabum*, *Acalypha indica* and *Plectranthus amboinicus* and intents to develop herbal tea. Selected herbs were dried in an oven for 12 hours at 50°C and infusions were prepared by boiling 1-5 g of dried sample in 100 ml of distilled water. Infusions were tested for their antioxidant properties using DPPH (1, 1-diphenyl-2-picrylhydrazyl) Radical Scavenging Assay and α -amylase enzyme inhibition using di nitro salicylic acid method and finally IC₅₀ value was also determined. The highest level of antioxidant properties has been observed in *Cardiospermum halicacabum* (7.7 mg mL⁻¹) while it's also having maximum α -amylase inhibition activity (45.5 mg mL⁻¹). Hence, sensory evaluation was done to select the best sample for consumption and it was subjected to the chemical analysis. The phytochemical analysis confirmed that all these leaf infusions contain in between the range of Anthocyanin (0.13-8.31 mg L⁻¹), Polyphenol (115.23-236.64 mg L⁻¹), free sugar (24.67-236.64 mg L⁻¹). Accordingly, there is a potential to develop the herbal tea by using these five herbs.

Keywords: Alpha amylase inhibition, Anti-oxidant, Free sugar, Phytochemicals, Siddha medicine