

Formulation Palmyrah Jaggery by Incorporating *Cassia auriculata* Aqueous Extract as a Natural Sweetener for Diabetic Patients



Abinaya Kannathas

Faculty of Agriculture, University of Jaffna, Sri Lanka

Dr.S.Vasantharuba

Faculty of Agriculture, University of Jaffna, Sri Lanka

Dr.T.Thayalini

Unit of Siddha Medicine, University of Jaffna, Sri Lanka

Abstract

Cassia auriculata (*Avarai*) is one of the medicinal plant which acts as an antidiabetic in diabetic patients. Palmyrah jaggery is the natural sweetener and adjuvant which helps to maintain the blood glucose level as it contains low glycemic index. The aim of this study is to formulate a Palmyrah jaggery incorporated with *Cassia auriculata* plant extracts as a natural sweetener for diabetic patients. The fresh *Cassia auriculata* plant parts (leaves, flowers, bark, root, and unripen fruit) were collected from three Divisional Secretariat divisions (*Kaithady, Karainagar, Nunavil*) of Jaffna district, Sri Lanka. Palmyrah sap was collected from *Meesalai, Varani* areas in Jaffna Sri Lanka. *Cassia auriculata* plant materials were shade dried and oven dried and ground as a coarse powder. Incorporation of plant extracts were done by Aqueous Extract (AQ) (decoction) method. From the coarse powder 5g from each plant parts were weighed down and decoction (Aqueous Extract) were prepared at 70-80°C. From that 10mL and 30mL (AQ10 and AQ30) of decoction (Aqueous extract) were added separately into the Palmyrah sap. In the determination of invitro α -Amylase inhibitory assay, Antioxidant properties and proximate composition were carried out for different concentration of *Cassia auriculata* incorporated jaggery and control jaggery. Palmyrah jaggery without *Cassia auriculata* was used as a control. When comparing the α -Amylase inhibitory action Aqueous extracts (AQ30) exhibited significantly ($p<0.05$) highest enzyme inhibition than control jaggery (58.44 ± 0.66 %). In the determination of total antioxidant activity Aqueous extract (AQ30) exhibited significantly ($p<0.05$) highest phenolic content

79.53±1.79 mg gallic acid equivalent/ g dry matter, total flavonoid content of 24.08±0.59 mg catechin equivalent/ g dry matter and antioxidant capacity of 184.09±1.93 mg ascorbic acid equivalent/ g dry matter. Meanwhile proximate composition *Cassia auriculata* incorporated jaggery and control jaggery. It showed that *Cassia auriculata* incorporation does not cause any changes in proximate composition. From this study, it can be concluded that *Cassia auriculata* incorporated jaggery is more beneficial than artificial sweeteners, it act as a natural sweetener and therapeutic for diabetic patients. Among those Aqueous extract (AQ30) incorporated jaggery can use as a natural sweetener for diabetic patients.

Keywords:

Diabetes, Natural sweetener, *Cassia auriculata*

Biography:

Abinaya Kannathas graduated from Faculty of Agriculture, University of Jaffna with specialization of Agricultural Chemistry (Food Science). Interested in Human nutrition and dietetics, Food processing and Food technology, in which I'm looking for opportunities to pursuing my postgraduate studies. As I'm interested in Nutrition and dietetics this research was carried out during final year project.