

ANTIOXIDANT CAPACITY OF COCOA (*THEOBROMA CACAO*) POD HUSK

T.S. Abeywansha and D.N. Karunaratne*

¹Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka

**nedrak@pdn.ac.lk*

Cocoa is known to contain many antioxidant compounds. Antioxidants have many beneficial properties. Cocoa husk is a byproduct of the cocoa industry and may be an economically viable source of antioxidant compounds. This study was aimed at determining the antioxidant content of cocoa pod husk. Well-ripened cocoa fruits were obtained from a tree in Pujapitiya, Kandy, Sri Lanka. The methanol extract of crude cocoa husk was fractionated on a Silica gel 60 gravity column (25 cm X 2.0 cm) by gradient elution with ethyl acetate: methanol. The resulting fractions were pooled according to thin layer chromatography results to obtain three fractions. Total polyphenol content of the fractions and the crude was determined using Folin-Ciocalteu colorimetric method and expressed as milligram of Gallic acid equivalent (GAE) per gram of cocoa extract. Antioxidant capacity of the crude and the fractions was assessed using 2,2-diphenyl-1-picrylhydrazil (DPPH). The standard antioxidant used was α -tocopherol. DPPH radical scavenging capacity was expressed using the value of concentration of the sample which shows 50% radical scavenging capacity (IC_{50} value). Total flavonoid content was determined using Aluminum colorimetric method and expressed as milligram of quercetin equivalent (QE) per gram of cocoa extract. High Performance Liquid Chromatography (HPLC) was performed on a C-18 column (3×150 mm, Agilent Corp.) to check the presence of catechin and quercetin.

The total polyphenol content is in the range of 3-17 GAE/g fraction. The total flavonoid content is in the range of 117-725 QE/g fraction. Though crude showed higher polyphenol content and flavonoid content it showed less antioxidant capacity than other fractions. The total polyphenol content and flavonoid content do not show positive and significant relationship with IC_{50} values. Cocoa husk may be considered as a good source of antioxidants for use in food or cosmetic preparations.