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Anthocyanin extraction and purification: A class of versatile compounds from indigenous fruits of Pakistan

Abstract:

Anthocyanins (ACNs) are water-soluble plant pigments responsible for the blue, purple, and red color of many plant tissues. The food industry is renewing its interest in replacing synthetic red dyes with natural plant colorants in response to consumer concerns due to wide availability, non-toxicity, and complete biodegradation. However, the major problem with ACNs in all these sources is their instability and low extraction yield during processing and storage. Therefore, purification and chemical stabilization of ACNs is the main focus of recent studies and the purification of ACNs extract is necessary before the quantity of each ACNs can be determined. Hence, the aim of present study is to identify, purify and characterize the ACNs from indigenous fruits for their potential exploitation and industrial use. ACNs are first time characterized from indigenous fruits such as Grewia asiatica (G.asiatica), Opuntia f.indica , Teminalla cattappa, Carissa carndass. The total ACNs content in all fruits was determined by pH differential method, whereas the individual ACN composition and identification of ACNs was done by high performance liquid chromatography coupled to photodiode array and MS/MS detection. Results indicated that indigenous fruits of Sindh contents high amount of ACNs i.e. G. asiatica (1193.8 µg/g) followed by T.cattapa (670.23 µg/g), cactus pear (552.62 µg/g) and carissa carandas (414.21µg/g). Among these fruits Cyanidin-3-O (6"acetyl glucoside) was the major ACN (695µg/g~44-63%) in G. asiatica, while cyanidin-3-O-glycoside was dominant ACN in Cactus pear (220.23 µg/g ~45%) . Hence these CAN from indigenous fruits can be exploited as a functional food commodity for industries if explored properly, for its possible utilization and commercial use.

Biography

Dr. Farah Naz Talpur has completed her PhD at the age of 29 years from National Centre of Excellence in Analytical Chemistry (NCEAC), University of Sindh, Jamshoro. She has done postdoctoral research at Middle East Technical University, Ankara, Turkey (2008-2010) and Dublin City University Ireland, March-August 2014.Presently she is serving as Professor at NCEAC, University of Sindh. She has 22 years experience in research and teaching in Analytical chemistry. She has published 180 quality research papers in peer reviewed journals with impact factor 460 and 3384 citations. Delivered 20 lectures in International and 35 in National Chemistry conferences. Dr. Talpur Awarded as Productive Scientist of Pakistan thrice in 2011 , 2012 and 2014 respectively by the Ministry of Science & Technology, Government of Pakistan.