

# Phenolic Compound Profiles and their Corresponding Antioxidant Capacity of Purple Pitaya (*Hylocereus* sp.) Genotypes

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Folin-Ciocalteu and TEAC (Trolox equivalent antioxidant capacity) assay together with the spectrophotometric determination of betalains were applied to investigate the correlation between phenolics and their contribution to the antioxidant capacity of five different Costa Rican genotypes of purple pitaya (*Hylocereus* sp.) and of *H. polyrhizus* fruits. Maximum antioxidant capacity, total phenolic and betalain contents were observed in the genotype ‘Lisa’. While non-betalainic phenolic compounds contributed only to a minor extent, betalains were responsible for the major antioxidant capacity of purple pitaya juices evaluated. The phenolic pattern of each genotype was also thoroughly investigated using liquid chromatography coupled to positive electrospray ionization (ESI) tandem mass spectrometry. In addition to the well known betalains previously reported in *Hylocereus* fruits, several biosynthetic precursors were detected. Notably, decarboxylated and dehydrogenated betalains were identified as genuine compounds of the juices. Some of these compounds were previously described as artifacts upon heat exposure. Moreover, gallic acid was identified for the first time in pitaya fruits. While the phenolic profiles generally differed between genotypes, phenolic compound composition of ‘Rosa’ resembled that of *H. polyrhizus* with respect to total contents of betacyanins, betalainic precursors, phyllocactin and *cyclo*-Dopa malonyl-glucosides.

*Key words:* Antioxidant Capacity, Betalains, Phenolics