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Bioactive and functional properties of Andean crops: purple sweet potato and purple corn

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Consumption of native crops in the Andean region is associated with improved health and extended life span. Many of these crops have high concentrations of phenolic compounds among other phytochemicals. Phenolics are known to possess several bioactive and functional properties; therefore, the search for novel crops with high phenolic content is of increasing interest within the food industry.

Our objective was to study the antioxidant activity, antimicrobial effect and color potential of extracts from Andean crops with high anthocyanin content such as Peruvian, purple sweet potato and purple corn.

Total phenolics, anthocyanins, antioxidant activity and color were assayed spectrophotometrically. Color was also measured using the Hunter Lab colorimeter. A spectrophotometric test and the Kirby-Bauer Method were used to study the effect of the extracts on microbial growth.

Results indicate that crops with the highest total phenolic and anthocyanin content also had the highest antioxidant activity. Antioxidant activity and total phenolic content of purple sweet potato were 78 and 48% higher, respectively, than that of a blueberry variety assayed in our laboratory. Of the products tested, purple corn cob had higher antioxidant activity than sweet potato. In purple corn, anthocyanins tend to concentrate in the cob periderm and the quantity determined was found to be 3 times higher than that of the core.

Characterization of bioactive and functional properties of novel crops opens the possibility to introduce new products into the market. The high phenolic content of these crops seems to contribute to most of the bioactive and functional properties of these novel products. The high amount of anthocyanins of these crops makes them a healthier choice and an alternative for synthetic colorants.