ANTIOXIDANT PROPERTIES OF CACTI WASTES

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Introduction. Northeast of Mexico is characterized by presents an arid climate and vegetation rich in fruits belonging to the family *Cactaceae*. Nowadays, there is a great interest in studying different plant products to know their antioxidant potential because of the different health benefits. Natural antioxidants present in food have attracted interest because of their safety and potential nutritional and the therapeutic effects (1). It has been shown that fruits containing polyphenols have the ability to reduce the risk of chronic and degenerative diseases; this potential health benefit is related to the content of phenolic compounds which are presents in pulp fruit as well as their byproducts. In addition to its high antioxidant potential, phenolic compounds are associated with health-promoting activities such as reduced levels of sugar in blood, and anticarcinogenic, anti-inflammatory, anti-aging and anti-thrombotic effects (2, 3).
Therefore, the aim of this study was to determine the antioxidant potential of extracts from different cacti fruit wastes.

Methods. The fruits used (Tuna green, red tuna, xoconostle, and pitaya) were collected in the state of Nuevo Leon, Mexico. The peel and seeds were removed and dried at 60°C, and then pulverized. The extractions were carried out using water and subsequently acetone (70%). These extracts were analyzed in order to determine phenolic compounds content estimated by using the Folin-Ciocalteu colorimetric method. In addition, flavonoids (4) and antioxidant capacity by both $DPPH^{\bullet}$ and TEAC methods were evaluated.

Results. Aqueous samples results by $DPPH^{\bullet}$ shown that green tuna peels (GTP), red tuna peels (RTP) and pitaya peels (PP) had the highest antioxidant capacity above 100 gallic acid equivalents. Furthermore, in samples extracted with acetone, Xoconostle seeds XS the highest with approximately 440 equivalents of gallic acid.

In TEAC results of aqueous samples was as follow GTP, RTP and PP had the highest antioxidant capacity, in this case with 300 Trolox equivalents. In acetone samples, it was found that Xoconostle seeds (XS) showed the highest result reaching 500 Trolox equivalents.

Comparing these results with the phenols content in samples, we can confirm that they are directly related to the antioxidant capacity. The aqueous sample that presented the highest concentration was as follow GTP, PP and RTP, while in acetone samples the highest concentration was found in the XS. These results are similar or even higher than those reported for different types of fruit waste (5).

Moreover, flavonoids are also related with the antioxidant activity. Aqueous samples had the highest concentration of PP, and XS showed the highest concentration in acetone (70%) samples once again.

Conclusions. Polyphenols can be considered value-added compounds obtained from agro-industrial wastes. These compounds can be isolated from the waste, giving a use to such materials. In the present study, we determined that cacti fruits wastes are a source of phenolic antioxidants; however, it is important to determine each one of the compounds responsible for such capacity.

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