

Design Of Functional Meat Rich In Antioxidant Dietary Fiber From Avocado And Mango Peels

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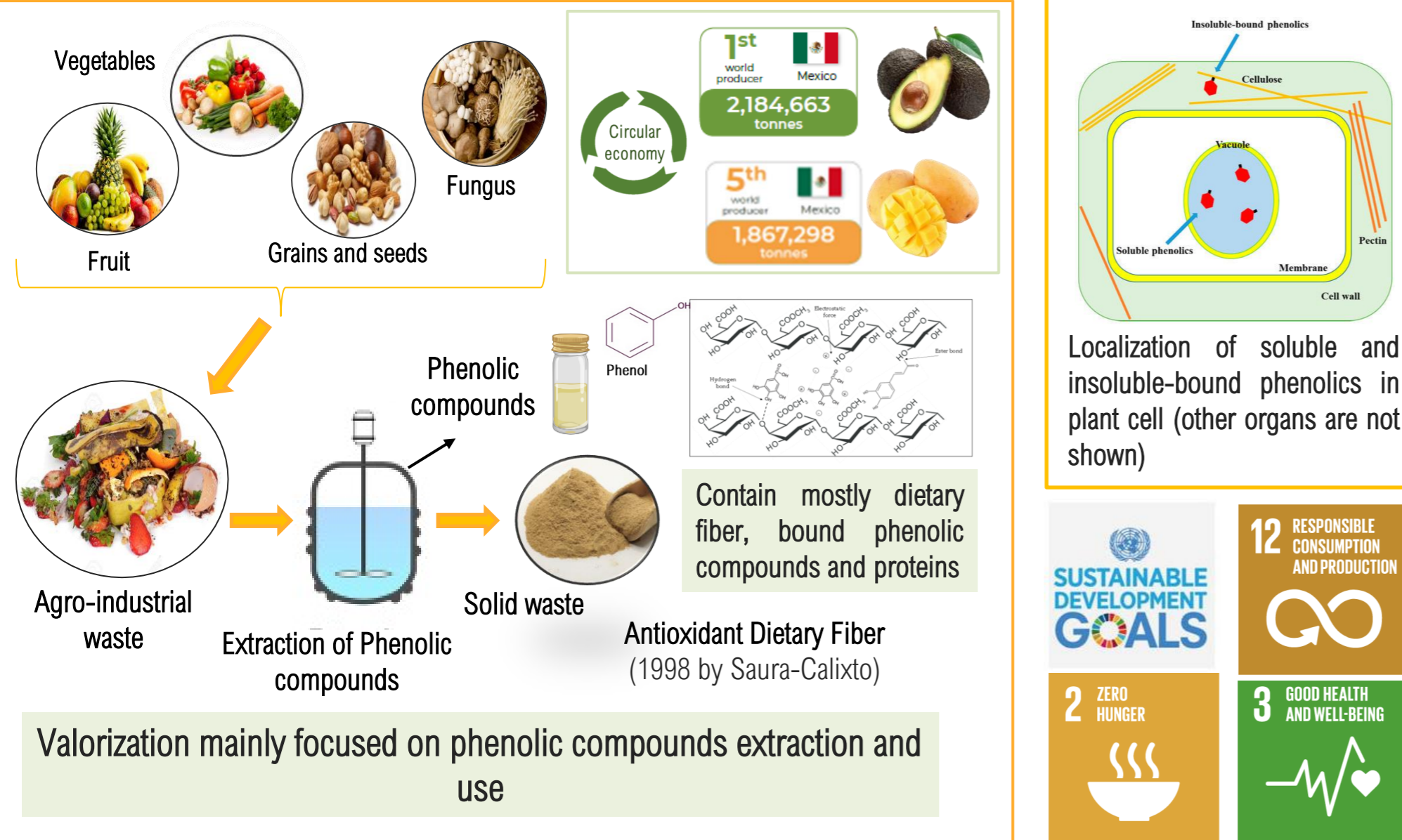
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INTRODUCTION & AIM

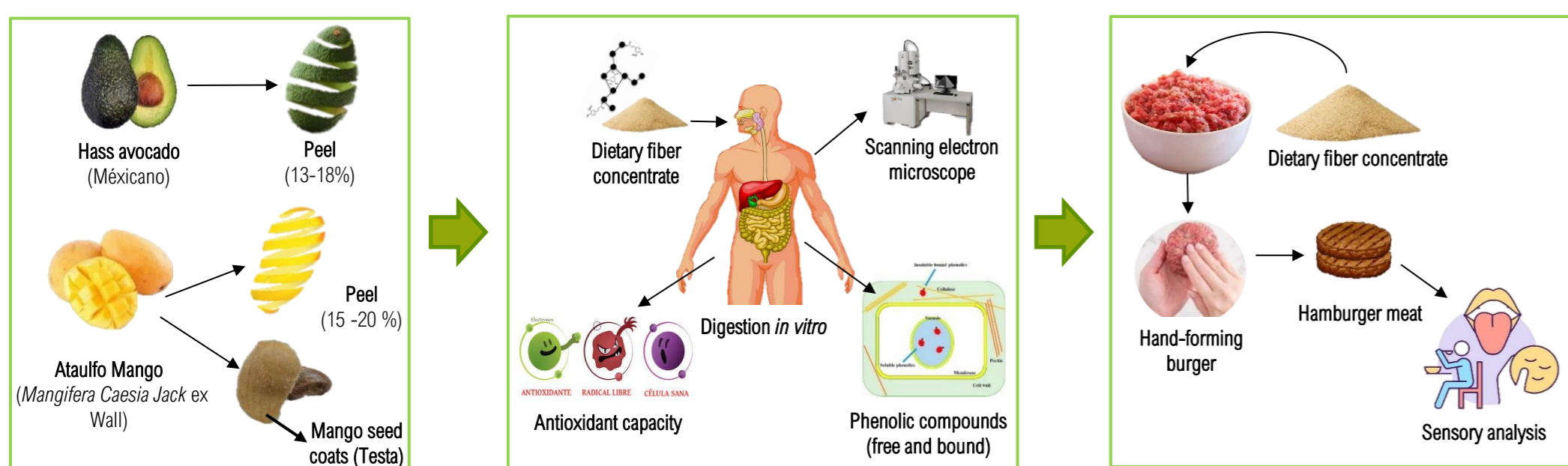
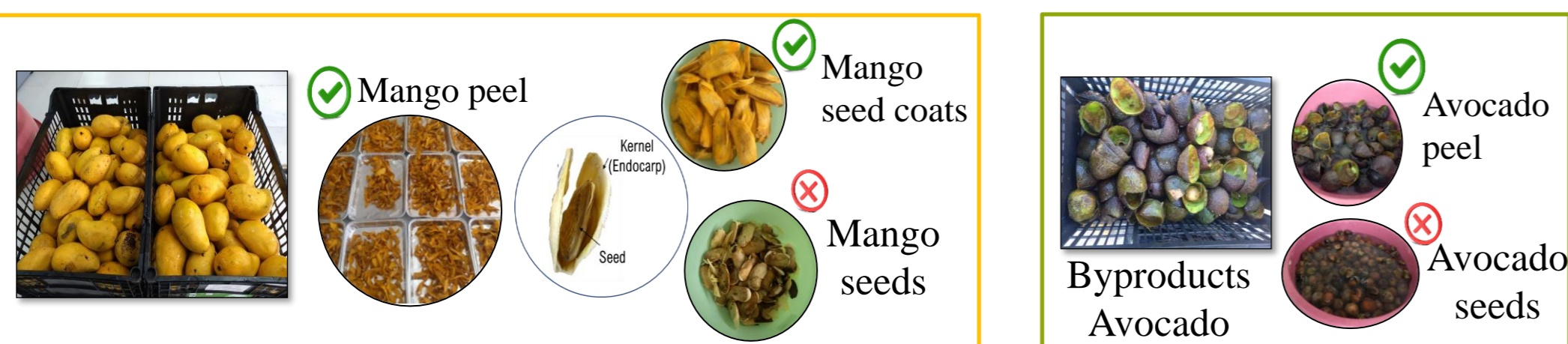
What are the sources of dietary fiber?



To determine the techno-functional properties of antioxidant dietary fiber obtained from by-products of avocado and mango industrialization and evaluate its potential use for enriching a meat product.

METHOD

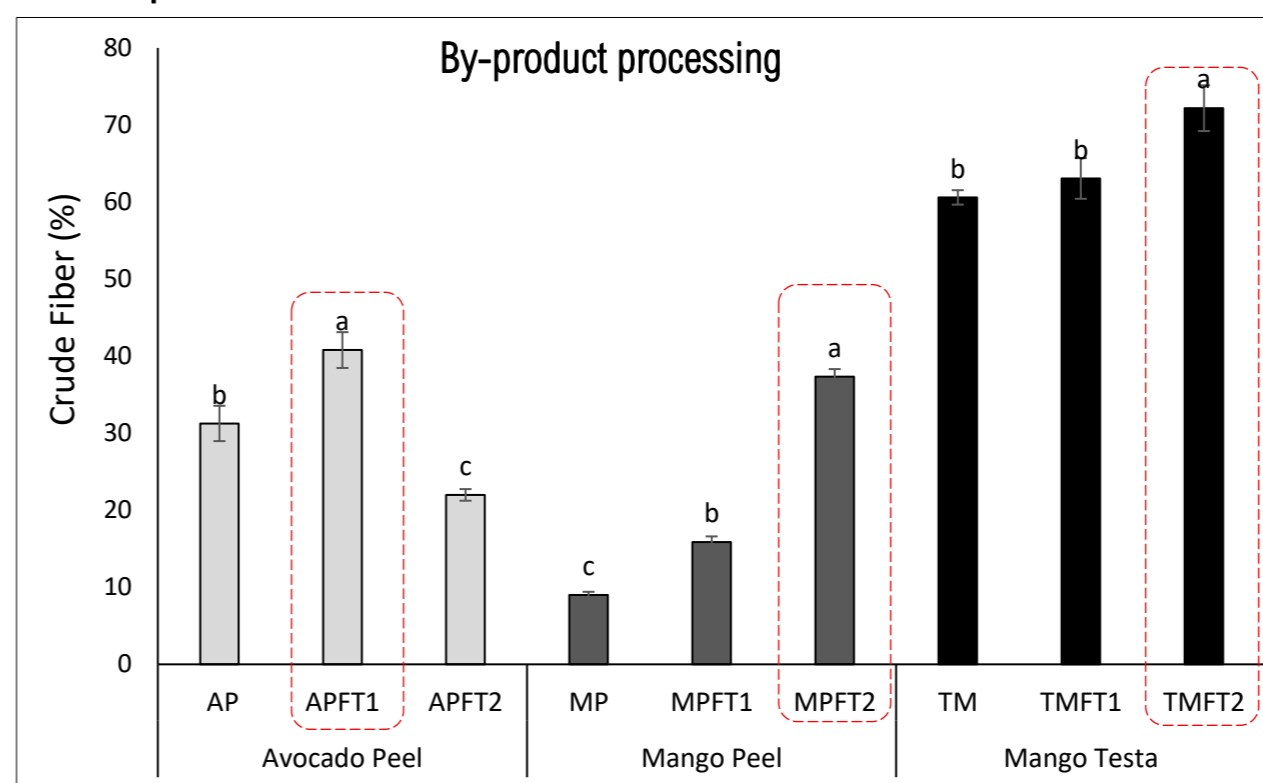
This study deals with the utilization of solid residues from the traditional extraction of phenolic compounds



After obtaining the fiber concentrates, a characterization was carried out by means of a proximal analysis and mineral content. Then, their techno-functional properties were evaluated, the content of phenolic compounds (both free and bound) was determined, these compounds were identified and quantified, and the antioxidant activity and bioaccessibility of the phenolic compounds present in the fiber concentrates were evaluated. Finally, the fibers were added to a hamburger-type meat formulation.

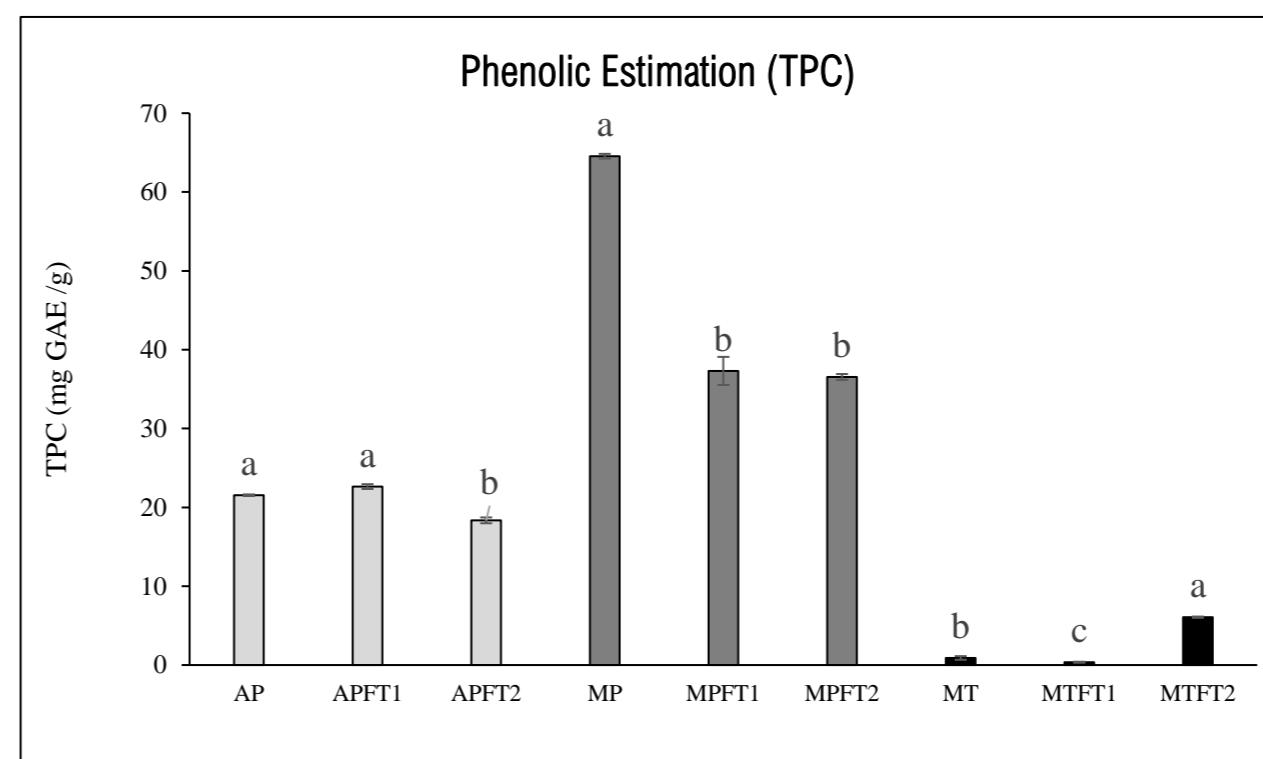
RESULTS & DISCUSSION

The total dietary fiber content in all three materials was higher than 50%. The highest Total Phenolic Content (TPC) was present in mango peel fiber concentrates (MPFT), followed by avocado peel fiber concentrates and mango testa with 37.31 ± 1.78 , 22.64 ± 0.3 and 6.07 ± 0.08 mg GAE/g, respectively. Antioxidant activity, measured by DPPH* assay, was lower in fiber concentrates compared to by-products. HPLC-IDA-EPI-MS analysis identified 62 PC compounds in the fiber concentrates.

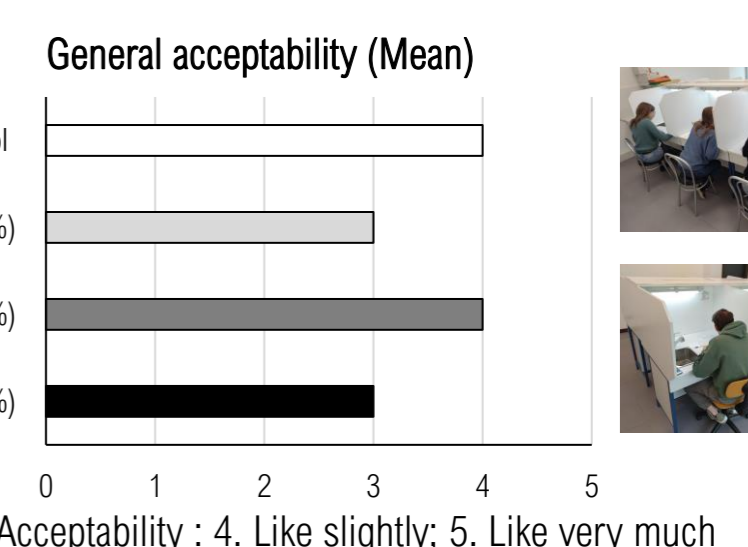
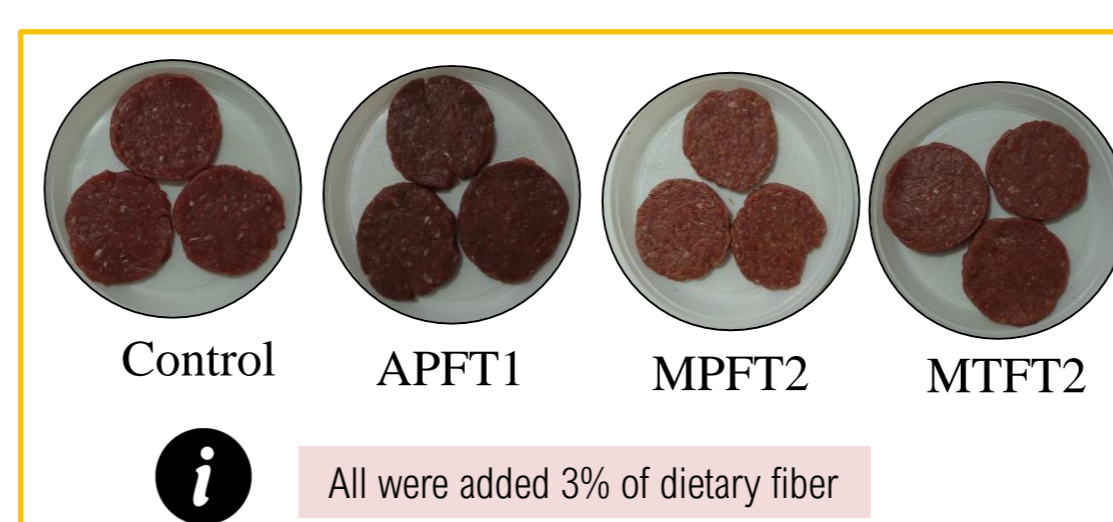
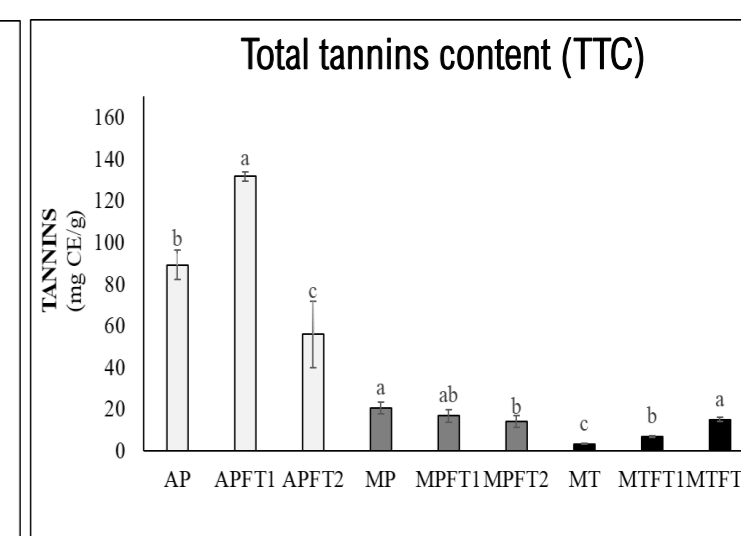
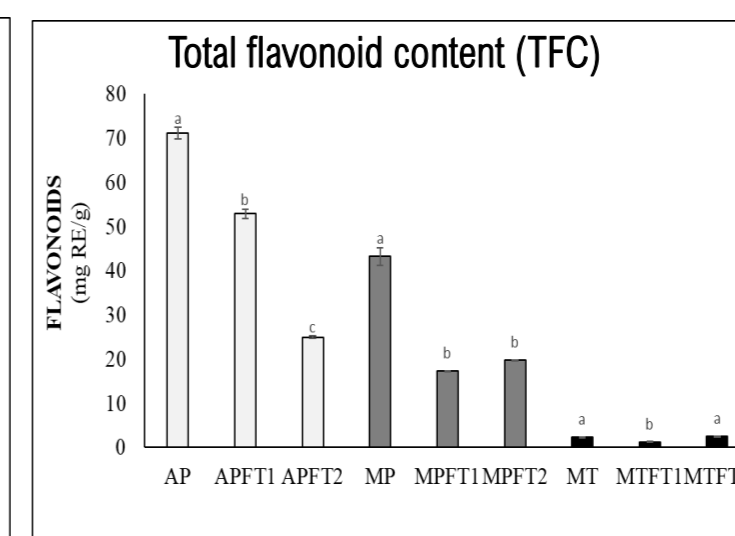
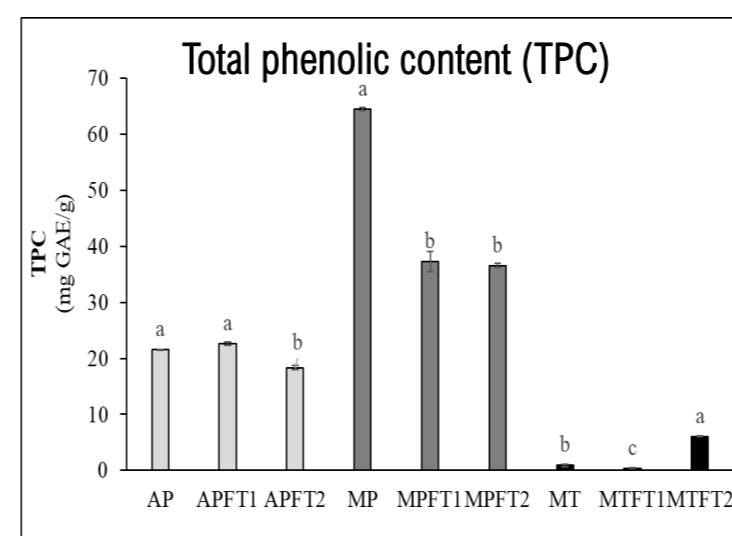


Treatment 1: Concentrated NOT defatted fiber
Treatment 2: Concentrated defatted fiber

AP: Avocado peel; APFT: Avocado peel fiber treatment (1)(2); MP: Mango peel; MPFT: Mango peel fiber treatment (1)(2); MT: Mango Testa; MFT: Mango Testa fiber treatment (1)(2). Values reported are the means \pm standard deviations (n=3). Values are expressed on dry weight basis



The higher content of polyphenols in mango peel is related to the associated phenolic compounds present in the peel (Asif et al., 2016).



CONCLUSION

Considering the results obtained in this study, it was observed that the MPFT2 sample proved to be the most favorable material in terms of dietary fiber content (both soluble and insoluble), phenolic compound content, as well as in terms of its functional properties.

FUTURE WORK / REFERENCES

- Saura-Calixto, F., Pérez-Jiménez, J., & Goñi, I. (2009). Contribution of cereals to dietary fibre and antioxidant intakes: Toward more reliable methodology. *Journal of Cereal Science*, 50(2), 291–294. <https://doi.org/10.1016/j.jcs.2009.04.008>
- Torres-León, C., Vicente, A. A., Flores-López, M. L., Rojas, R., Serna-Cock, L., Alvarez-Pérez, O. B., & Aguilar, C. N. (2018). Edible films and coatings based on mango (var. Ataulfo) by-products to improve gas transfer rate of peach. *Lwt*, 97(March), 624–631. <https://doi.org/10.1016/j.lwt.2018.07.057>