TECHNO-FUNCTIONAL PROPERTIES OF NEW ANDEAN INGREDIENTS: MACA (*Lepidium meyenii*) AND AMARANTH (*Amaranthus caudatus*).

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INTRODUCTION

Andean highlands are located in native areas over 4000 m altitude

Wisdom and extraordinary nutritional features

Soups, beverages, pasta, jams, puddings, and others

Contents of bioactive compounds

INTRODUCTION

Low level of fat, high level of protein, minerals (Ca, Mg, K), dietary fiber

Maca: glucosinolates, functional polysaccharides, alkamides, antioxidant ,anti-inflammatory

Minerals (P, Ca, K, Mg), vitamins (E, B2, C), antioxidants, dietary fiber, and protein

Cholesterol-lowering, anticancer precursors, squalene, unsaturated fatty acids with Ω6 .

Maca (*Lepidium meyenii*)

Amaranth (*Amaranthus cuadatus*)

OBJECTIVE

The aim of this work was to evaluate, and the main techno-functional properties of wholemeal (W) and non-wholemeal (NW) maca and amaranth flours in terms of their adding processed food aptitude.

MATERIALS AND METHODS

- **Plant materials**

Amaranth (*Amaranthus cuadatus*)

-Wholemeal
-Non-wholemeal

Maca *(Lepidium meyenii)*

-Wholemeal
-Non-wholemeal

MATERIALS AND METHODS

- **Techno-functional properties**

WHC - Water Holding Capacity. Wu, L.; Zhang, M.; Xin, X.; Lai, F.; Wu, H. Food Funct. 2019, 10(5), 2894–905

SI - Solubility Index. Wu, L.; Zhang, M.; Xin, X.; Lai, F.; Wu, H. Food Funct. 2019, 10(5), 2894–905

SC - Swelling Capacity. Robertson, J.A.; Monredon, F.D.; Dysseler, P.; Guillon, F.; Amadó, R.; Thibault J.F. LWT. 2000, 33, 72-79

OHC - Oil Holding Capacity. Wu, L.; Zhang, M.; Xin, X.; Lai, F.; Wu, H. Food Funct. 2019, 10(5), 2894–905

EC - Emulsifying Capacity. Sathe, S.K.; Salunkhe, D.K. J. Food Sci. 1981, 46(1), 71–81

ES - Emulsifyng Stability. Sathe, S.K.; Salunkhe, D.K. J. Food Sci. 1981, 46(1), 71–81

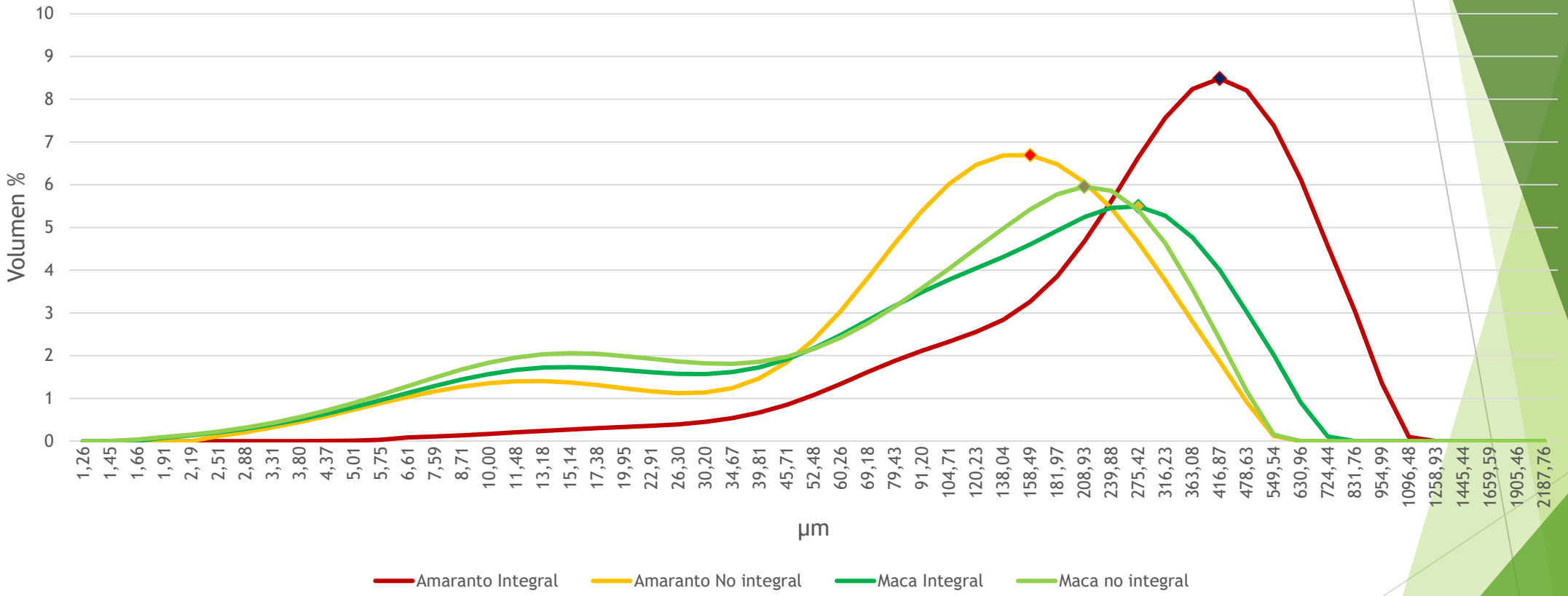
FC - Foaming Capacity: Shevkani, K.; Singh, N.; Kaur, A.; Rana, J.C. Food Hydrocoll. 2015, 43, 679–689

FS – Foam Stability (30 min): Shevkani, K.; Singh, N.; Kaur, A.; Rana, J.C. Food Hydrocoll. 2015, 43, 679–689

PARTICLE SIZE. ISO 13320. 2020

RESULTS AND DISCUSSION

PARTICLE SIZE: Volume mean diameter - D(4,3)

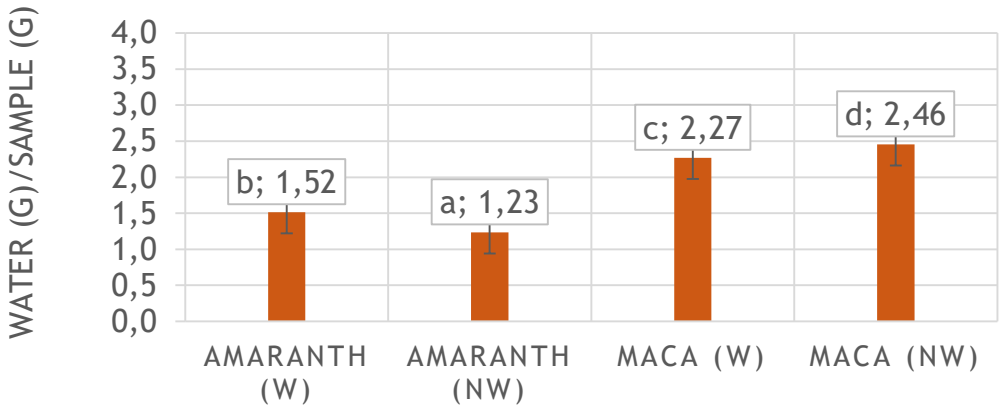


	D(4,3)
Maca no integral	128,08±0,90[a] (µm)
Amaranto No integra	128,53±1,45[a] (µm)
Maca Integral	157,25±3,57[b] (µm)
Amaranto Integral	327,17±17,18[c] (µm)

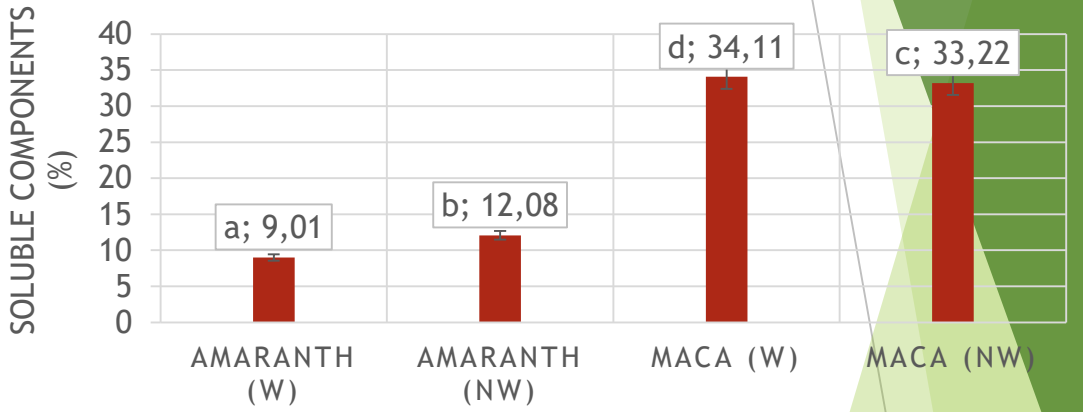
RESULTS AND DISCUSSION

HYDRATION PROPERTIES

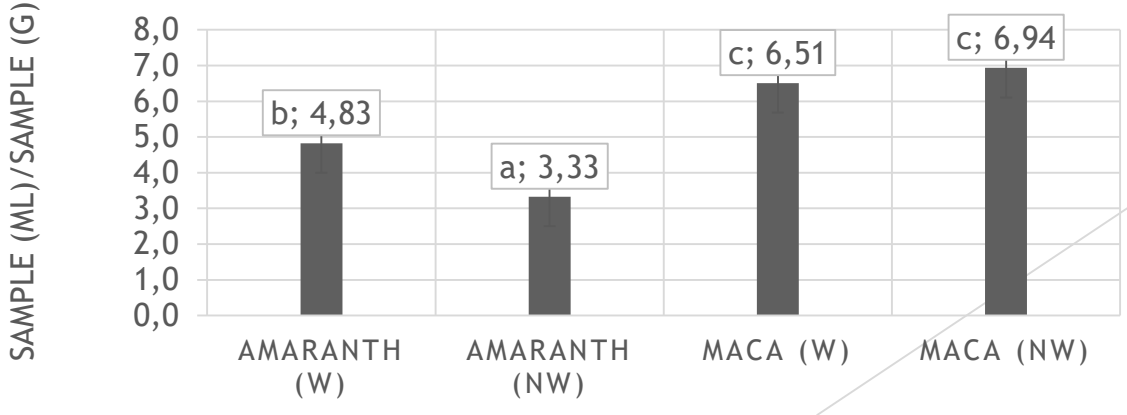
Water holding capacity (WHC)



Solubility index (SI)



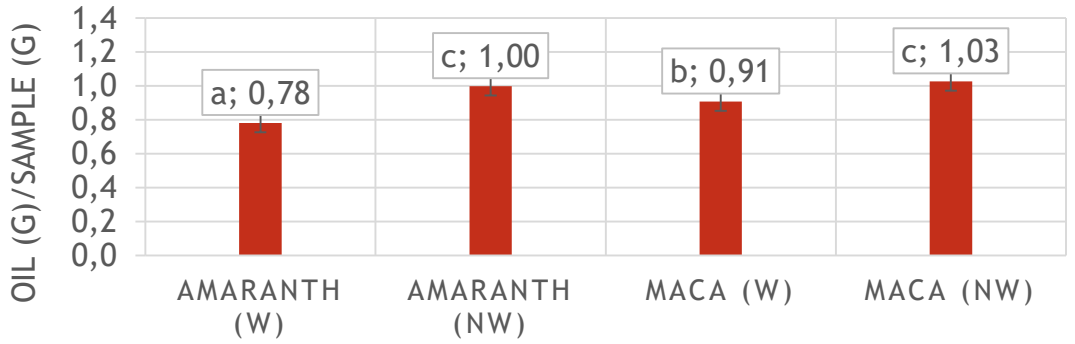
Sweeling capacity (SC)



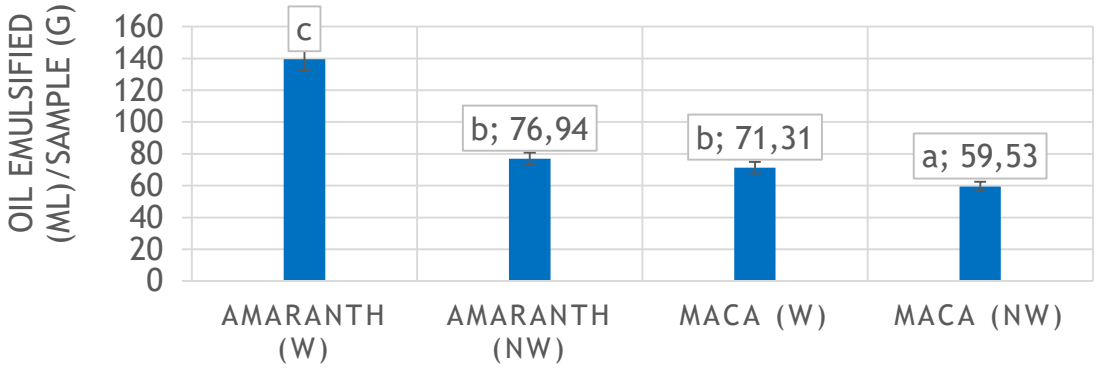
RESULTS AND DISCUSSION

OIL HOLDING CAPACITY, EMULSIFYING CAPACITY AND EMULSION STABILITY

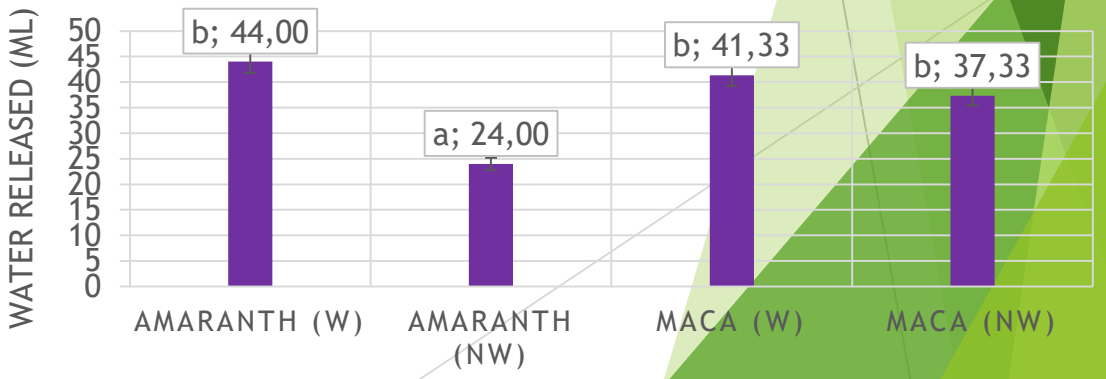
Oil holding capacity (OHC)



Emulsifying capacity (EC)



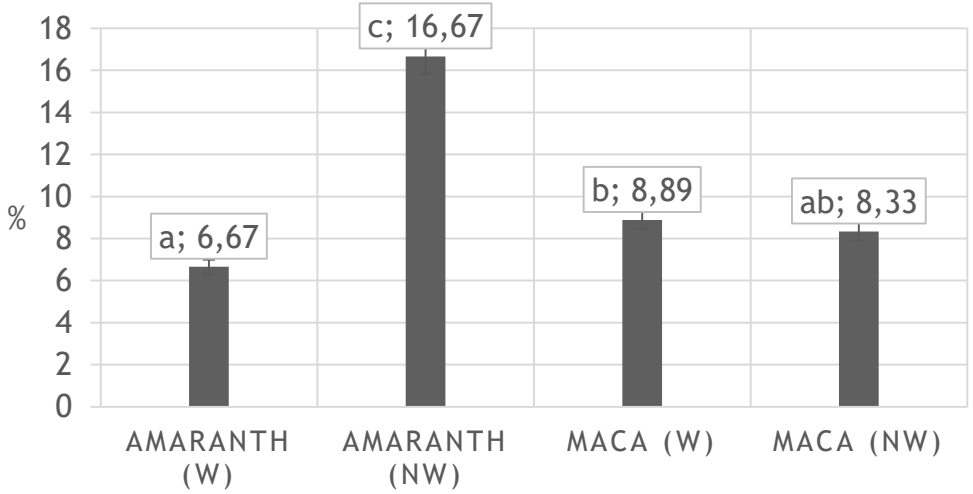
emulsion stability at 24h (ES)

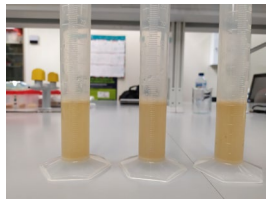


RESULTS AND DISCUSSION

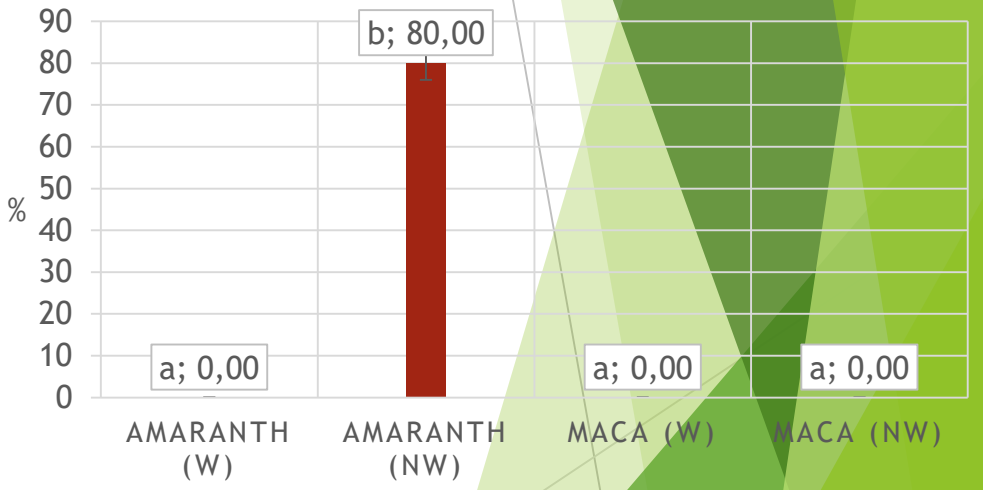
Foaming capacity and foam stability

Foaming capacity (FC)





Foam stability at 30 min (FS)



CONCLUSIONS

- The results obtained allow us to consider incorporating these types of flours to different food products, knowing their effect on **Water Holding Capacity**, **Oil Holding Capacity**, **Emulsifying Capacity** and therefore being able to modify the processes concerning the traditional ones. This is especially interesting in the case of the meat products elaboration process in which these parameters could be critical, with the addition of these types of flours.