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Functional potential of different products based on maqui berries (*Aristotelia chilensis*)

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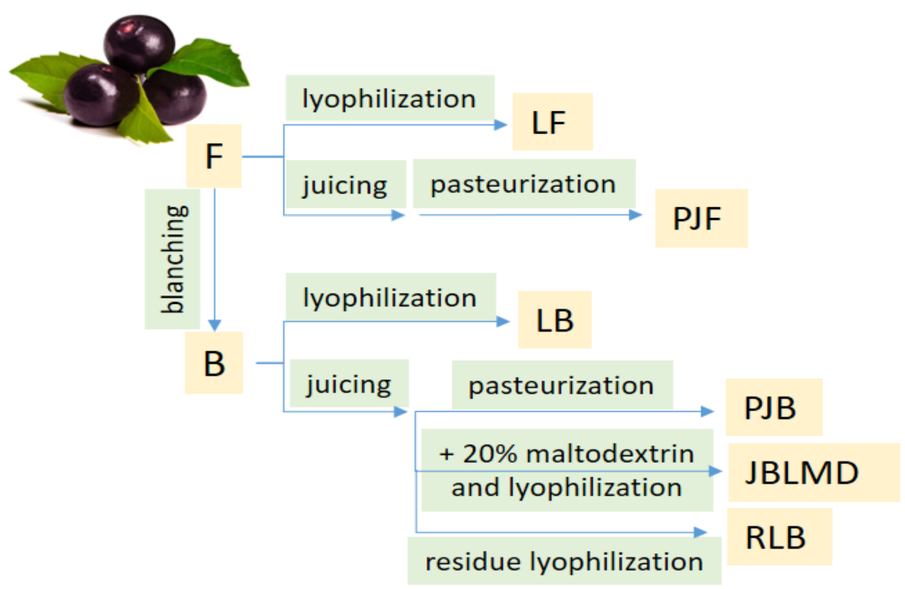
INTRODUCTION & AIM

Maqui is a native berry widely distributed in the forests of Argentina and Chile, known for its significant health benefits, particularly due to its high antioxidant content. Indigenous peoples have used it as a medicinal plant for centuries, and today it is found in foods such as juices, jams, freeze-dried fruit, and powders that support a healthy diet. This study aimed to analyze the influence of different technological processes on the bioactive compounds and antioxidant power of maqui fruits collected from natural populations in Lanín and Nahuel Huapi National Parks.

METHOD



F: Fresh fruit; B: Blanched fruit; LF: Lyophilized fresh fruit; LB: Lyophilized blanched fruit; RLB: Residue from juice extraction from blanched fruit; PJF: Pasteurized juice from fresh fruit; PJB: Pasteurized juice from blanched fruit; JBLMD: Juice from blanched fruits added with 20% maltodextrin and then lyophilized

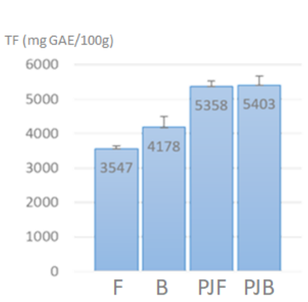
Determinations performed on samples & products:

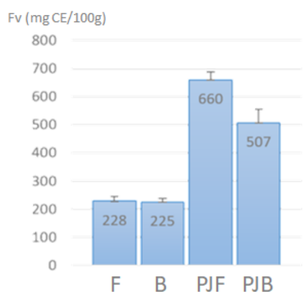
Total phenols (TP)	**Fast Blue BB** [1]
Flavonoids (Fv)	**$AlCl_3$** [2]
Antiradical Power (AR)	**DPPH in MeOH** [3]
Monomeric Anthocyanins (ACY)	**pH differential method** [4]
Polymeric Color Percentage (% PC)	**bisulfite method** [5]
Anthocyanin Degradation Index (ADI)	**Fuleki and Francis** [6]
Statistical Analysis	**ANOVA - Test DGC** [7]

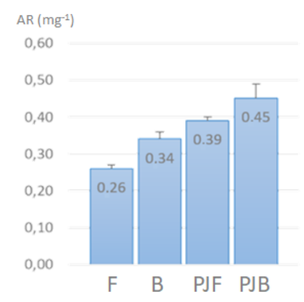
RESULTS & DISCUSSION

Fresh Maqui Fruits

Lyophilized Maqui Fruits

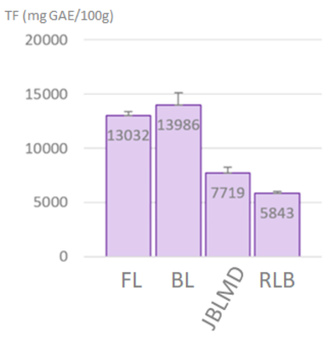


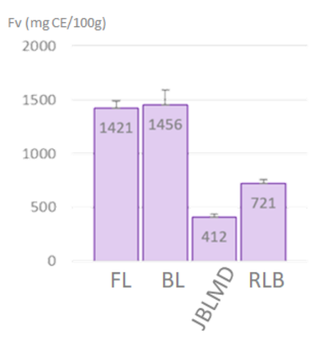


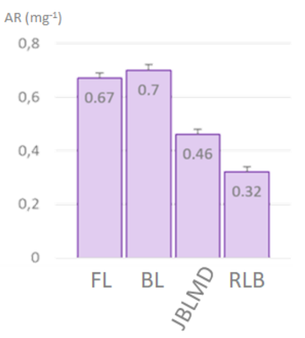


	MACY	% PC	ADI
F	799 ± 65	3 ± 0	1.04 ± 0.00
B	836 ± 44	4 ± 1	1.05 ± 0.00
PFJ	862 ± 52	12 ± 2	1.06 ± 0.00
PBJ	728 ± 15	13 ± 1	1.08 ± 0.01

MACY: mg cyanidin-3-glucoside/100 g







	MACY	% PC	ADI
FL	1575 ± 175	31 ± 2	1.13 ± 0.02
BL	1822 ± 156	40 ± 2	1.14 ± 0.02
JBLMD	1927 ± 134	5 ± 0	1.04 ± 0.00
RLB	899 ± 26	18 ± 7	1.11 ± 0.05

MACY: mg cyanidin-3-glucoside/100 g

Juices from blanched and unblanched fruit showed the highest values of TP, Fv, and AR. For anthocyanins (MACY), the lowest value was found in JPE. Regarding the % PC, both juices showed the highest values. The anthocyanin degradation index (ADI) was low in both cases.

Lyophilized fresh and blanched fruit showed high values of TP, Fv, and AR (while JMDEL had lower values due to the dilution effect by the addition of 20% maltodextrin). REL maintained bioactive compound and AR values higher than those found in powders of other red fruits [8, 9 10].

- Blanching the fruit does not affect bioactive content or AR.
- Juice extraction followed by pasteurization improves the functional characteristics of maqui.
- Blanching increases juice yield by 15% without loss of functionality.
- The high % PC value for freeze-dried fruits (with or without blanching) shows that this process reduces MACY content while not preventing their polymerization

CONCLUSION:

Pasteurized juice from blanched fruit (a simple and low-cost process) and lyophilized juice with maltodextrin (which would have many applications as it contains no seeds and retains high levels of bioactive compounds and AR) would be interesting processes for enhancing the value of maqui. In both cases, it would be beneficial to recover the residue due to its remaining concentration of antioxidants and other bioactive components (e.g., dietary fiber).

References can be found at: