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EXPLORING THE NUTRITIONAL BENEFITS OF POME FRUITS COMPOTES

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Abstract: This study presents a comprehensive compositional analysis of apple compote (AC), quince compote (QC) and pear compote (PC) focusing on key physicochemical and nutritional parameters. The research evaluates moisture content, ash content, sugar concentration, total acidity, vitamin C levels, and total polyphenols using standardized analytical methods. By quantifying these elements, the study aims to provide a detailed nutritional profile of each fruit-based preserve. Such a study is particularly relevant in the current context of increasing consumer demand for natural, minimally processed foods with functional health benefits. By highlighting the presence of these compounds, the study contributes to the growing body of evidence supporting the inclusion of fruit-based products in health-promoting dietary patterns. In this context, the analysis of apple, quince, and pear compotes is timely and valuable, offering insights into how traditional food products can meet modern nutritional needs and support public health.

Keywords: apple, quince, pear, compote, physicochemical properties, polyphenols, vitamin C, acidity.

Introduction
Fruit compotes, traditionally consumed for their taste and shelf stability, are now gaining recognition for their nutritional and antioxidant properties. Evaluating their composition is essential not only for quality control and labelling accuracy but also for informing consumers, nutritionists, and food producers about their potential role in a balanced diet. Moreover, antioxidants such as vitamin C and polyphenols are known to help reduce oxidative stress in the body, which is linked to chronic diseases such as cardiovascular conditions, diabetes, and certain types of cancer.

Material and method
To assess the composition of apple, quince and pear compotes, the following analytical techniques were employed: Moisture Content: Gravimetric method at 103 ± 2 °C; Ash Content: Calcination at 550 °C; Sugar Content: Refractometer determination; Total Acidity: Titrimetric method; Vitamin C: Volumetric method using 2,6-dichlorophenolindophenol and total polyphenols: Folin-Ciocalteu method.

Results and discussion
The results revealed significant differences in the composition of the three fruit types. Pear compote exhibited the highest moisture content (83.1%), while quince compote had the lowest (79.8%), which contributed to its thicker texture. Quince compote also demonstrated the highest ash content (0.59%) and sugar concentration (14.2%), indicating a richer mineral and carbohydrate profile compared to the other compotes.

In terms of acidity, quince compote exhibited the highest citric acid equivalent (0.75 g/L), contributing a distinctive tartness to its flavor profile. Vitamin C content was highest in quince (8.6 mg/100g), emphasizing its potential antioxidant properties. Furthermore, quince compote showed the highest polyphenol concentration (181.48 mg GAE/100g), followed by pear (158.85 mg GAE/100g) and apple compote (120.89 mg GAE/100g), reinforcing quince's superior antioxidant capacity.

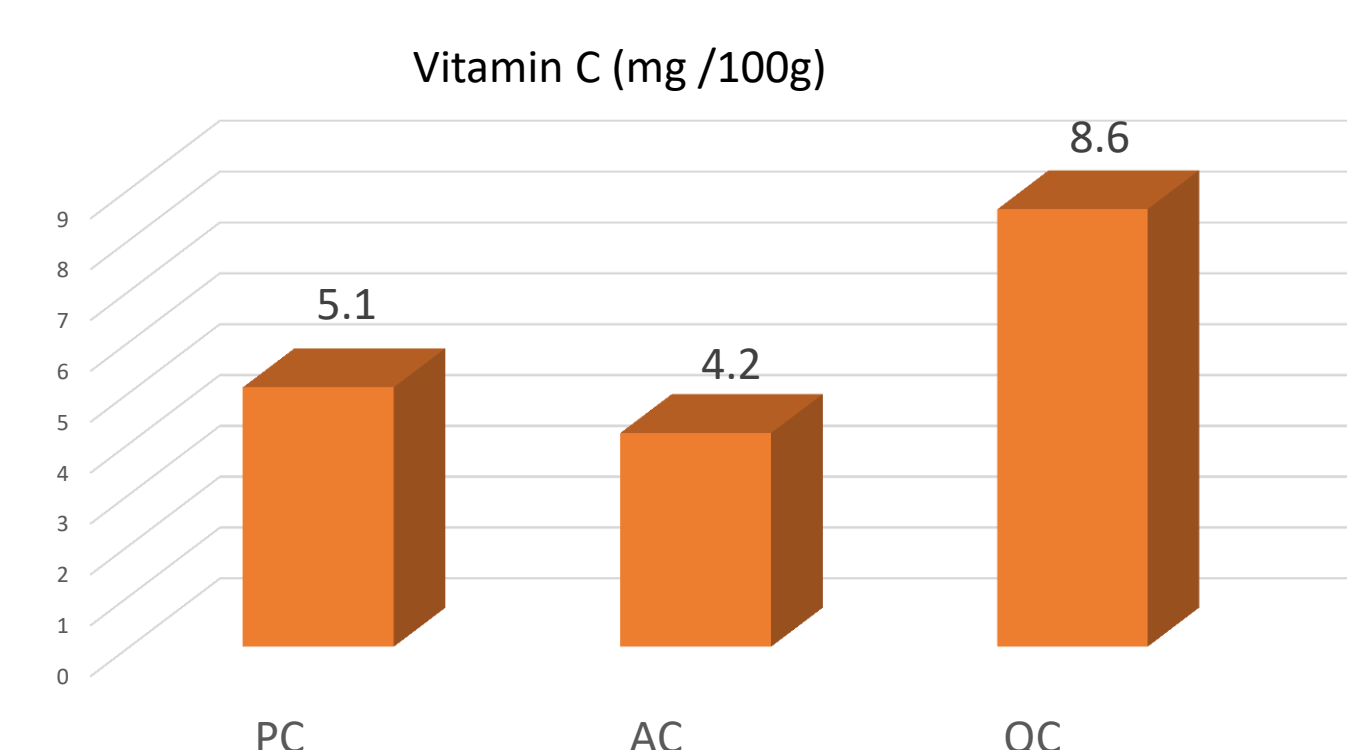


Fig. 2. Vitamin C in pome fruit compotes

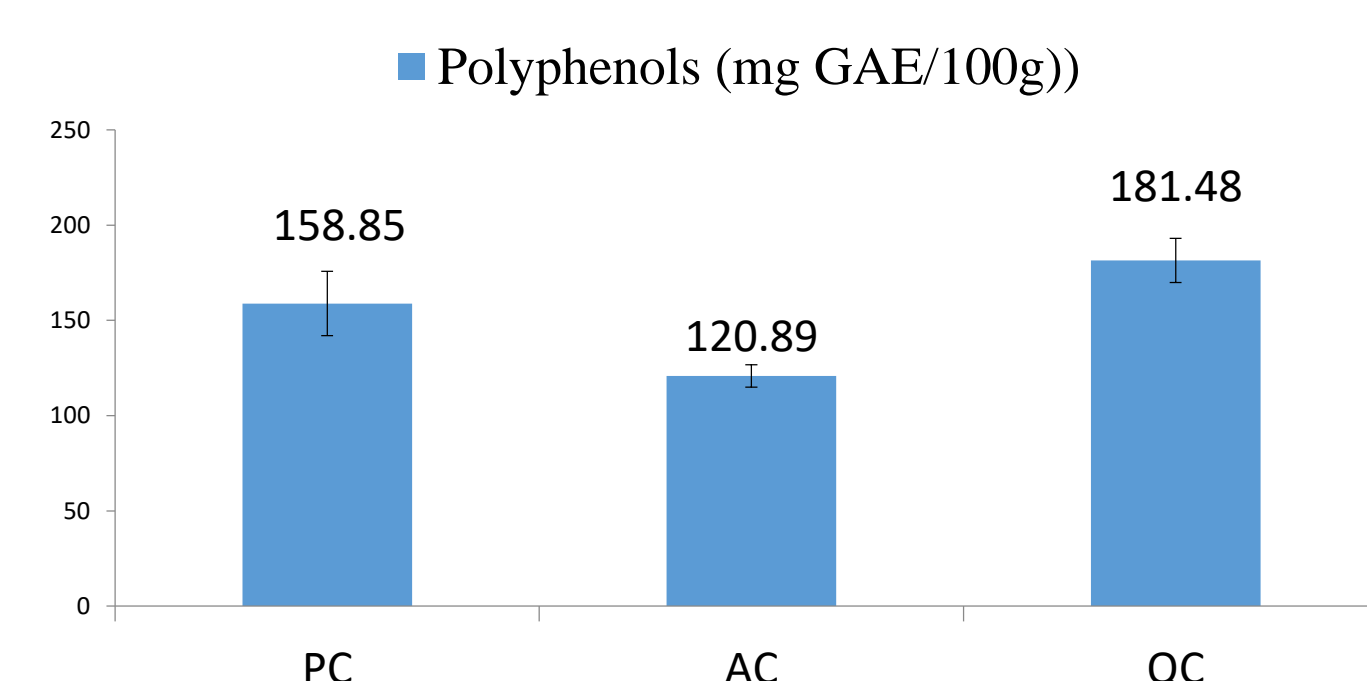


Fig 3. Polyphenols in fruit compotes

The processing of pome fruits into compotes helps preserve these beneficial compounds, which are crucial for combating oxidative stress and supporting immune function (Li et al., 2018). Quince, for example, is often recognized for its high concentrations of polyphenols and vitamin C, making it a particularly potent source of antioxidants (Sadeghi et al., 2020).

• Conclusions

• These findings underscore the importance of incorporating pome fruit compotes into the diet, as they offer significant health benefits due to their antioxidant and anti-inflammatory properties. This study highlights the nutritional value and potential health benefits of fruit-based preserves, particularly in terms of their antioxidant content, which plays a crucial role in reducing oxidative stress and supporting overall health.

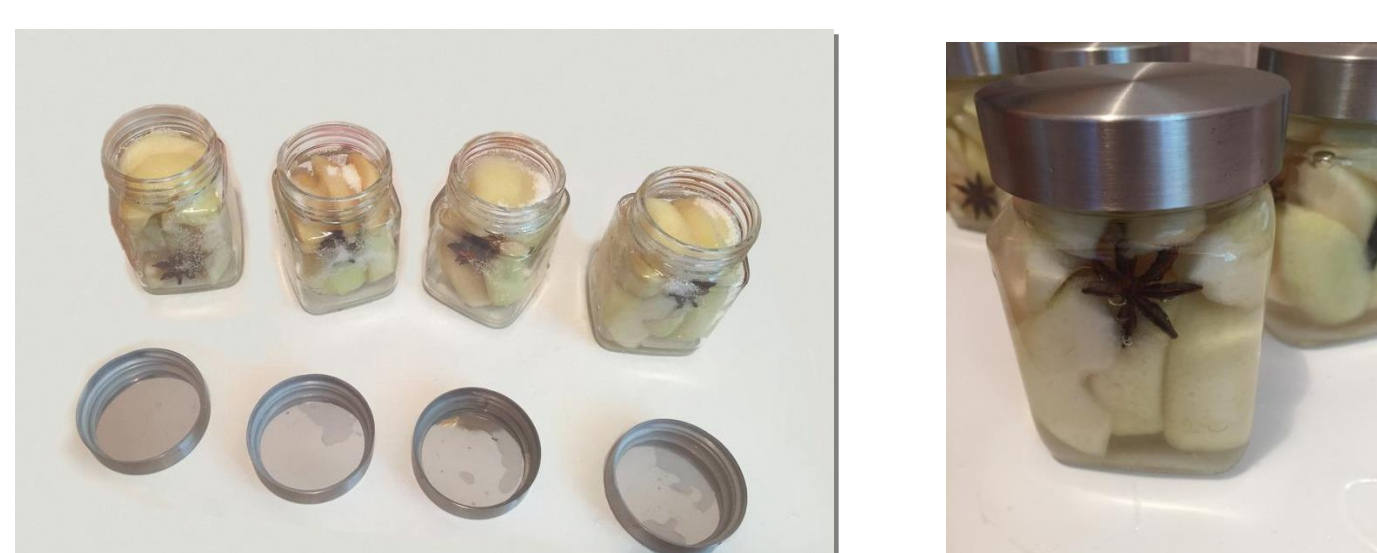


Figure 1. The pome fruits compotes