

# 4PYCHEM



## 4<sup>TH</sup> PORTUGUESE YOUNG CHEMISTS MEETING

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PORTUGAL



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**4º PYChEM – 4th Portuguese Young Chemists Meeting**

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**90 High pressure processing applied on strawberry pulp: effect on microbiological and physicochemical parameters during refrigerated storage.**

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**91 Shelf-life extension of Caldo Verde soup at 4 °C by high pressure processing.**

Jorge A. Saraiva, Mauro D. Santos, Adelaide Almeida, Ângela Cunha, José A. Lopes da Silva, Liliana G. Fidalgo, Rui P. Queirós, Ana Portela, João Vieira, Ivonne Delgadillo

**92 Food storage under pressure, hyperbaric storage, at and above room temperature, as an alternative to refrigeration using whey cheese, Requeijão as a case study.**

Pedro A. Fernandes, Jorge A. Saraiva, Mauro D. Santos, Liliana G. Fidalgo, Rui P. Queirós, Ivonne Delgadillo, Ricardo V. Duarte, Diana I. Santos, Sílvia A. Moreira

## Wild and commercial samples of *Achillea millefolium* L.: proximate composition and individual compounds obtained by chromatography

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Medicinal plants have been used since ancient times and emerge nowadays as alternative to synthetic products, due to their richness in bioactive compounds. In a society that requires new and safer products, due to the growing concern with health and nutrition, medicinal plants are now being used not only in traditional medicine but also in a number of food and pharmaceutical products [1]. *Achillea millefolium* L., belongs to Asteraceae family and it is commonly known as yarrow, very common in mountain meadows, pathways, crop fields and homegardens. Widespread across Europe, its infusion, decoction and alcoholic extract are widely used as an herbal remedy to treat digestive problems, diabetes, hepato-biliary diseases and amenorrhea, showing also antitumor, antimicrobial, anti-inflammatory and antioxidant properties [2,3]. In the present work, commercial and wild samples of *A. millefoilum* were characterized regarding the proximate composition and individual compounds namely, free sugars, organic acids, fatty acids and tocopherols, determined by chromatographic techniques coupled to different detectors (HPLC-RI, HPLC-DAD, GC-FID e HPLC-fluorescence, respectively). Carbohydrates, followed by proteins, were the major macronutrients in both samples. Commercial yarrow gave higher content of fat (and saturated fatty acids, mainly palmitic acid C16:0), proteins, ash, energetic value and total sugars (including fructose, glucose, sucrose and trehalose). Wild sample revealed higher levels of carbohydrates; it also showed raffinose (not detected in the commercial sample), polysaturated fatty acids (mainly linoleic acid, C18:2n-6) and organic acids (including malic, oxalic and quinic acids). Regarding tocopherols, both samples showed similar profile, although the wild sample gave higher levels of total tocopherols;  $\gamma$ -Tocopherol was the most abundant isoform;  $\delta$ -Tocopherol was not found in the samples.

Data obtained are clear evidence that traditional medicinal plants can be used not only in household products but also in pharmaceutical and food industry as a source of new and safer bioactive compounds.

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