



**5<sup>th</sup> Portuguese Young  
Chemists Meeting**  
*(5th PYChem)*  
&  
**1<sup>st</sup> European Young  
Chemists Meeting**  
*(1st EYChem)*

**Centro Cultural Vila Flor**  
**Guimarães, Portugal**  
**26<sup>th</sup> – 29<sup>th</sup> of April**



ICVS/3B's  
INSTITUTE FOR  
CHEMICAL SCIENCES  
AND BIOPROCESS  
TECHNOLOGY



Câmara Municipal de Guimarães





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## General Programme

	26 April	27 April	28 April	29 April
<b>9:00-13:20</b>	Registration and Workshop of Open Science and European Open Access Policies in H2020	Organic Chemistry and Medicinal Chemistry	Inorganic, Physical, Analytical and Electrochemistry	Materials Chemistry and Nanomaterials and Surface Chemistry
<b>13:30</b>	Opening Ceremony	Lunch	Lunch	Lunch
<b>14:00 - 18:00</b>	Green Chemistry + Chemistry of Natural Products	Biochemistry and Medicinal Chemistry	CHEM2NATURE Symposium. Chemical strategies for modification of natural origin materials  Assembleia GQJ (17h)	Materials Chemistry and Nanomaterials and Surface Chemistry
<b>18:00</b>				Closing Ceremony
<b>19:00</b>	Welcome Cocktail	Walking Tour		
<b>21:30</b>	Get-together night		Gala Dinner	



## P12. The use of wild fruits of *Fragaria vesca* L. in preparations with bioactive properties: chemical characterization, antioxidant, antibacterial and antibiofilm activities

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Wild strawberry, *Fragaria vesca* L., belongs to Rosaceae family and is commonly found in roadsides and slopes [1]. The most consumed parts of this plant are its sweet small fruits, which constitute a source of vitamins and phenolic compounds, being also used in infusions due to their organoleptic properties and for the treatment of some intestinal disorders [2, 3]. In the present work, *F. vesca* fruits were evaluated for their nutritional value and further used in the preparation of infusions. The chemical composition of the fruits and corresponding infusions was determined in terms of soluble sugars, organic acids, tocopherols, folates (by HPLC coupled to different detectors), phenolic compounds (by HPLC-DAD/ESI-MS) and mineral elements (atomic absorption spectroscopy). Some of these bioactive compounds were correlated with antioxidant and antibacterial properties evaluated either in infusions as also in hydromethanolic extracts. Carbohydrates were the main macronutrients in the fruits, followed by fat and proteins. Regarding the fatty acids, polyunsaturated fatty acids showed higher prevalence, mainly due to the presence of  $\alpha$ -linolenic (C18:3n3) and  $\gamma$ -linolenic (C18:3n6) acids. Sucrose and citric acid were, respectively, the main sugar and organic acid found in the fruits and in its infusions. The microelement found in higher amounts in both samples was manganese, while potassium and calcium were the macroelements present in higher levels in the fruits and infusions, respectively. Both samples presented folates and tocopherols, being  $\gamma$ -tocopherol the main isoform detected in the fruits, while  $\alpha$ -tocopherol was the only isoform quantified in the infusion. The hydromethanolic extract prepared from the fruits gave higher antioxidant and antibacterial activities, namely against *Escherichia coli* and *Pseudomonas aeruginosa*, than the infusion; it also showed capacity to inhibit the formation of bacterial biofilm. Both bioactivities are highly correlated with the presence of phenolic compounds, in which the major are ellagic acid derivatives (sanguin h10) followed by flavan 3-ols ((+)-catechin) and anthocyanin compounds (pelargonidin-3-glucoside). Although fruits of wild *F. vesca* are mainly consumed in fresh, this study also proves the potentiality of their infusions as a source of bioactive molecules and properties.

### References

- [1] Castroviejo, S., et al., Flora Ibérica 6. Real Jardín Botánico 1998, CSIC, Madrid. [2] Savikin, K., et al., Journal of Ethnopharmacology 2013, 146, 803-810.
- [3] Bubba, M., et al., Journal of Mass Spectrometry 2012, 47, 1207-1220.

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