Phytochemical and pharmacological study of *Dianthus hyssopifolius* L., a medicinal plant from the "Sierra del Caurel"

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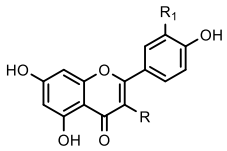
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Abstract

In recent years, natural resources have regained great importance in the development and research of new pharmacological agents. "Sierra del Caurel" is a natural spot located in the heart of Galicia (Spain). It is presented as a potent reservoir of bioactive secondary metabolites. *Dianthus hyssopifolius* L. is an herbaceous plant belonging to the caryophyllaceae family. It has been used as a medicinal plant for decades by the inhabitants of the "Sierra del Caurel" because of its antirrheumatic and anticatarrhal properties. However, to date, few phytochemical and pharmacological data have been reported on species of the genus Dianthus. Therefore, *Dianthus hyssopifolius* L. has been selected to study its composition and therapeutic activity. To obtain the secondary metabolites, extraction with organic solvents was first carried out. The whole plant was macerated fresh in methanol at room temperature. The crude extract was resolved in methanol:water (3:1) and extracted with hexane. The polar phase was evaporated under reduced pressure to methanol: water (1:5) after extraction with dicloromethane. After evaporation of the solvent, three oil extracts were obtained: hexane, dichloromethane and methanol. The methanol extract was solubilized in hot ethanol to yield a yellow precipitate. Sephadex LH-20 and Silica gel column chromatography as well as HPLC were used in order to fractionate the precipitate and to purify the obtained compounds. Using one- and two-dimensional NMR experiments and mass spectrometry, two flavonoids have been identified: a glycoside derived from quercetin and another from kaempferol. According to the bibliography review, study of antibacterial, anticancer, antifungal, anti-inflammatory, and antioxidant properties for the different extracts are currently in progress.

Image



Compound 1: R = Rutinoside; R_1 = OH
Compound 2: R = rhamnosyl-glucoside; R_1 = H

Figure 1.

Recent Publications

1. Blanco E, Macıa MJ, Morales R (1999) Medicinal and veterinary plants of El Caurel (Galicia, northwest Spain). Journal of Ethnopharmacology *65*(2):113-124.
2. Chandra S, Rawat DS (2015) Medicinal plants of the family Caryophyllaceae: a review of ethno-medicinal uses and pharmacological properties. Integrative Medicine Research 4(3):123-131.
3. Ciric A, Jakovljevic I, Djurdjevic P. Metal Complexes of Kaempferol and their Speciation in Human Plasma. First ed. Villers G and Fougere Y, Editors. Nova Biomedical (NY): Kaempferol, Chemistry, natural occurrences and health benefits, 2013.
4. Jahangir Hossen M, Bashir Uddin MB, Sayeem Uddin AS. Review on Natural Sources and Bioavailability. First ed. Garde-Cerdán T and Gonzalo-Diago A, Editors. Nova Publishers (NY). Kaempferol: biosynthesis, food sources and therapeutic uses, 2016.
5. Aliyazicioglu R, Demir S, Badem M, Sener SO, Korkmaz N, Demi EA, Ozgen U, Karaoglu SA, Aliyazicioglu Y (2017) Antioxidant, Antigenotoxic, Antimicrobial Activities and Phytochemical Analysis of Dianthus carmelitarum. Records of Natural Products 11:3.



Biography

Lucía Bada Díaz is graduated in Pharmacy by Universidade de Santiago de Compostela (Spain) since 2015. She completed her final project in botanic. She has a Master degree in Research and Development of New Drugs. Her passion is natural products, especially medicinal plants. Because of that she decided to do a thesis about medicinal plants. She is a determined person with clear and well-defined aims. Natural drugs development and innovation not only is an amazing and fertile research line nowadays, but also it has a promising future. That is why this topic is especially and stimulating for her. She is interested in medicinal and chemistry properties of phyto-preparations and phytotherapies researches in order to assess their scientific value, promote their pharmacological valorization and stimulate sustainable drug development with a high socioeconomic potential that would enhance the welfare of communities.

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Notes/Comments: