A229 Cannabis for medical applications

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Cannabis has been used medicinally for over 4,000 years for the treatment of a variety of disorders, including migraine, seizures, pain and nausea. The recreational use of Cannabis preparations complicated its medical applications for many years, but in the past decades the opinion has won ground that the medical use of Cannabis should be regarded separately from its 'recreational' use. With respect to this, our ultimate aim is to develop a Cannabis preparation with strong medicinal properties but lacking the undesirable psychotropic effects. In a pilot-scale experiment, two Cannabis cultivars (cv. *A* and *B*) were tested. From patients experience, it was known that oral adminstration of an ethanolic extract from cv. *B* causes a strong psycotropic effect whereas oral administration of an ethanol extract from cv. *A* results in a pain-killing effect for 6-10 hours for patients suffering from cystic fibrosis. HPLC analysis of both ethanol extracts revealed that no differences in the concentration of the main cannabinoids 9 tetrahydrocannabinol (THC) or cannabinol (CBN) could be observed and the concentration of cannabidiol (CBD) was about 5 times lower in the cv. A extract as compared to the cv. *B* extract. Subsequently both ethanol extracts were tested in a receptor binding study in order to determine the binding affinity towards both cannabinoid receptors CB1 and CB2. Although the affinity of both extracts towards the CB1 receptor was in the same order of magnitude (dissociation constants (K_d) 1.2e-7 M for cv. *B* and 2.2e-7 M for cv. *A*), the pain killing extract made from cv. A binds to the CB2 receptor with a much higher affinity as compared to the psychotropic extract from cv. *B* (K_d 5.6e-8 M and 4.8e-7 M respectively). This makes both Cannabis cultivars very suitable studying objects in order to discriminate for the compound(s) in Cannabis which causes the psychotropic and medicinal (pain killing) effects by using a metabolomics approach. In addition, a good agricultural practice (GAP) protocol for these cultivars will be developed for medicinal applications.

A230 Histological and pharmacological study of the essential oil of *Thymus piperella* L.

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Thymus piperella L. is an aromatic plant that is considered an Eastern Iberian endemism; it is traditionally used as a condiment. Our purpose was to check wether pharmacological properties of the essential oil attributed to other species of this genus are present in this specie (1).

Histological studies of leaf trichomes, which contain the essential oil, were made using optical microscopy and electronic microscopy. Chemical composition was also analyzed and thymol, carvacrol, *p*-cymene and 3-terpinene were the main components (2).

Oral acute toxicity was evaluated in accordance with OECD Guideline 420 (October 2000) using albino mice and no evidence of toxicity was detected at the assayed dose (2 g/Kg).

Spasmolytic activity was tested in an *in vitro* model using isolated ileon of Wistar rat, against acetylcholine and K^+-induced contractions. In both cases the essential oil inhibited these contractions in a concentration-dependent manner, suggesting a blockade of calcium channels mechanism (3).

Moreover, microbiological assays showed that the essential oil has antibacterial and antifungal properties.

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