

THE THERAPEUTIC USE OF CANNABIS

CBD –CANNABIDIOL

SAFETY PROFILE

Cannabidiolic acid CBDA and its decarboxylated form Cannabidiol CBD are the main constituents of the fiber-type Cannabis Sativa, also known as Industrial Hemp. They come from the oxidative cyclization of Cannabigerolic acid, CBGA, which is the first precursor of the most important phytocannabinoid subclasses.

The decarboxylation process occurs spontaneously during storage or extraction / purification of the compounds, when heat is usually applied at one moment or another.

CBD can transform into different metabolites, and it is interesting to note how mammals and the plant share overlapping oxygenating enzymes that produce the same type of CBD metabolites like the Cannbielsoin CBE-type. Other plant metabolites of CBD are Cannabifuran CBF, Cannabimovone CBM, from a specific variety of the plant and Cannabinodiol CBND, an aromatized analogue of CBD that increases with the age of the stored plant.

Steric interference

But what makes CBD so special that, having the same chemical structure than the psychotropic THC; it will not show the same kind of psychoactivity? The answer lies in geometry, in spatial configuration, whereas THC exists in an essentially planar conformation, CBD adopts a conformation where two rings are more or less at right angles to each other, and as a result of this CBD does not bind to or activate the CB1 receptor. In other words, the non planar conformation of CBD prevents it from reaching the ligand binding site in CB1.

However this is not a 100% so, for, while it is true for the naturally occurring CBD derivatives, it is not so clear for the enantiomeric series and the hydrogenated analogs which have been seen to display affinity in the nano molar range.

Today, we can say that in the presence of THC, CBD can antagonize the CB1 receptor at nano molar concentrations, and that CBD can act as a negative allosteric modulator of the CB1 receptor. Both, THC and CBD show synergism in some of their actions, and CBD acts as a modulator of the collateral effects of THC.

Through its action on the CB2 receptor as an inverse agonist, CBD executes its anti-inflammatory properties potently inhibiting the migration of immune cells.

CBD is an entourage molecule with a multitarget way of action that leaves “no stone unturned”, it is nonintoxicating, exerts a number of beneficial pharmacological effects that allow it to be used at high doses for certain conditions while promoting and maintaining health at lower doses acting through the triad of its antioxidative, anti-inflammatory and anti excitatory effects. It does not induce catalepsy nor alters physiological parameters. Psychological and psychomotor neurons are not adversely affected. Chronic use and high doses of up to 1.500 mg per day have been shown to be well tolerated by humans.

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