nausea and vomiting caused by cancer chemotherapy; nabilone (Cesamet®) which is a synthetic cannabinoid and an analog of THC which is approved for the treatment of nausea and vomiting caused by cytotoxic chemotherapy unresponsive to conventional antiemetics; nabiximols (Sativex®) a mixture of two cannabis plant extracts approved for the treatment of neuropathic pain, spasticity, overactive bladder, and other symptoms of multiple sclerosis; and highly purified botanical CBD (Epidiolex®) approved in the United States for the treatment of Dravet syndrome and Lennox-Gastaut syndrome in children and adults over the age of 2 years.

[0008] As can be seen above cannabinoids are a class of compounds which may be derived naturally from the cannabis plant or produced semi-synthetically or synthetically via chemical synthesis.

[0009] More than 100 different cannabinoids have been identified. These cannabinoids can be split into different groups as follows: phytocannabinoids; endocannabinoids and synthetic cannabinoids (which may be novel cannabinoids or synthetically produced versions of phytocannabinoids or endocannabinoids). The Handbook of Cannabis, Roger Pertwee, Chapter 1, pages 3 to 15 details the cannabinoids known to date.

[0010] Cannabidiol (CBD) is a major cannabinoid constituent of Cannabis species, such as the hemp plant (*Cannabis sativa*). Unlike other cannabinoids, such as THC, cannabidiol does not bind to CB1 or CB2 receptors, or its binding to the receptors is negligible in terms of inducing a pharmacological effect. Thus, cannabidiol does not cause the central or peripheral nervous system effects mediated by the CB1 or CB2 receptors. CBD has little or no psychotropic (cannabimimetic) activity and its molecular structure and properties are substantially different from those of other cannabinoids.

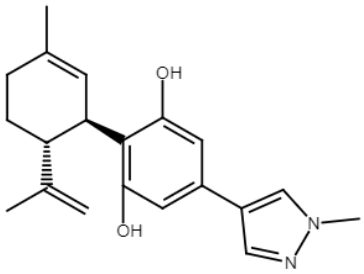
[0011] Cannabidiol administration has been the subject of research in an attempt to provide an alternative treatment for various diseases and disorders which may respond to such treatment.

[0012] Whilst literature such as Gong *et al.* (2019) have described possible synthetic routes to generate C4'-substituted derivatives of CBD, giving a broad range of compounds that could be potentially generated and potentially be tested, there is no provision of any data to suggest the efficacy of such compounds, let alone that any specific compounds would be of particular benefit compared to others in the treatment of a disease.

[0013] The present invention has been devised in light of these considerations.

~~BRIEF~~ SUMMARY ~~OF THE INVENTION~~

[0013a] In a first aspect of the present disclosure, there is provided a compound of formula (I), or a salt thereof,



(I)

[0013b] In another aspect of the present disclosure, there is provided a pharmaceutical composition comprising the compound as disclosed herein and one or more additional ingredients selected from carriers, diluents (e.g. oils), excipients, adjuvants, fillers, buffers, binders, disintegrants, preservatives, antioxidants, lubricants, stabilisers, solubilisers, surfactants, masking agents, colouring agents, flavouring agents, and sweetening agents.

[0013c] In a further aspect of the present disclosure, there is provided a compound as disclosed herein, or the pharmaceutical composition as disclosed herein, for use in therapy.

[0013d] In yet another aspect of the present disclosure, there is provided a compound as disclosed herein, or the pharmaceutical composition as disclosed herein, for use in the treatment of epilepsy.

[0013e] In another aspect of the present disclosure, there is provided a compound as disclosed herein, or the pharmaceutical composition as disclosed herein, for use in the treatment of generalised seizure.

[0013f] In a further aspect of the present disclosure, there is provided a compound as disclosed herein, or the pharmaceutical composition as disclosed herein, for use in the treatment of tonic-clonic seizure.

[0013g] In yet another aspect of the present disclosure, there is provided a compound o as disclosed herein, or the pharmaceutical composition as disclosed herein, for use as a medicament.

[0013h] In another aspect of the present disclosure, there is provided a use of the compound as disclosed herein, or the pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating epilepsy.

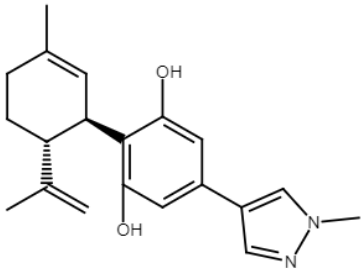
[0013i] In a further aspect of the present disclosure, there is provided a use of the compound as disclosed herein, or the pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating generalised seizure.

[0013j] In yet another aspect of the present disclosure, there is provided a Use of the compound as disclosed herein, or the pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating tonic-clonic seizure.

[0014] At its most general, the present ~~invention~~ disclosure relates to a synthetic cannabinoid compound which is biologically active and hence useful in the treatment of diseases. Such a novel compound may be administered by a wide variety of routes including but not limited to oral, transdermal, buccal, nasal, pulmonary, rectal or ocular. Such compound may be used for the treatment or prevention of a medical condition such as epilepsy.

[0015] The cannabidiol derivative of the ~~invention~~present disclosure is (1'R,2'R)-5'-methyl-4-(1-methyl-1H-pyrazol-4-yl)-2'-(prop-1-en-2-yl)-1',2',3',4'-tetrahydro-[1,1'-biphenyl]-2,6-diol, and will be referred to as the compound of formula (I) or compound **1** throughout.

[0016] In a first ~~aspect~~ example of the ~~invention~~ present disclosure there is provided a compound of formula (I), or a salt thereof:



formula (I)

[0017] In a second ~~aspect~~example of the ~~invention~~present disclosure there is a pharmaceutical composition comprising the compound of the first ~~aspect~~example and one or more additional ingredients selected from carriers, diluents (e.g. oils), excipients, adjuvants, fillers, buffers, binders, disintegrants, preservatives, antioxidants, lubricants, stabilisers, solubilisers, surfactants, masking agents, colouring agents, flavouring agents, and sweetening agents.

[0018] Preferably the pharmaceutical composition of the second ~~aspect~~example is in a form selected from a liquid, a solution, a suspension, an emulsion, a syrup, an electuary, a mouthwash, a drop, a tablet, a granule, a powder, a lozenge, a pastille, a capsule, a cachet, a pill, an ampoule, a bolus, a suppository, a pessary, a tincture, a gel, a paste, an ointment, a cream, a lotion, an oil, a foam, a spray, and an aerosol.

[0019] In a third ~~aspect~~example of the ~~invention~~present disclosure there is provided a compound of the first ~~aspect~~example, or the pharmaceutical composition of the second ~~aspect~~example, for use in a method of treatment.

[0020] Preferably, the method of treatment in the third ~~aspect~~example is a method of treatment of epilepsy, generalised seizure or tonic-clonic seizure.

[0021] In a fourth ~~aspect~~example of the ~~invention~~present disclosure there is provided a compound of the first ~~aspect~~example, or the pharmaceutical composition of the second ~~aspect~~example, for use as a medicament.

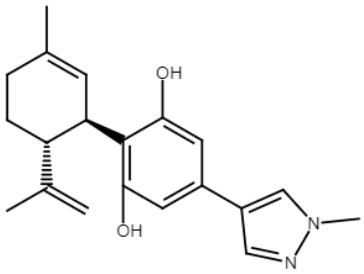
[0022] Preferably, the medicament of the fourth ~~aspect~~example is a medicament for treating epilepsy, generalised seizure or tonic-clonic seizure.

[0023] In a fifth ~~aspect~~example of the ~~invention~~present disclosure there is provided a method of treatment comprising administering to a subject in need of treatment a therapeutically effective amount of the compound of the compound of the first ~~aspect~~example or the pharmaceutical composition of the second ~~aspect~~example.

[0024] These and other ~~aspect~~examples ~~and embodiments~~ of the present disclosure~~invention~~ are described in further detail below.

CLAIMS

1. A compound of formula (I), or a salt thereof,



(I)

2. A pharmaceutical composition comprising the compound of claim 1 and one or more additional ingredients selected from carriers, diluents (e.g. oils), excipients, adjuvants, fillers, buffers, binders, disintegrants, preservatives, antioxidants, lubricants, stabilisers, solubilisers, surfactants, masking agents, colouring agents, flavouring agents, and sweetening agents.

3. The pharmaceutical composition of claim 2 in a form selected from a liquid, a solution, a suspension, an emulsion, a syrup, an electuary, a mouthwash, a drop, a tablet, a granule, a powder, a lozenge, a pastille, a capsule, a cachet, a pill, an ampoule, a bolus, a suppository, a pessary, a tincture, a gel, a paste, an ointment, a cream, a lotion, an oil, a foam, a spray, and an aerosol.

4. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use in ~~a method of treatment~~therapy.

5. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use in the treatment of epilepsy.

6. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use in the treatment of generalised seizure.

7. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use in the treatment of tonic-clonic seizure.

8. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use as a medicament.

9. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use as a medicament for treating epilepsy.

10. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use as a medicament for treating generalised seizure.

11. The compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, for use as a medicament for treating tonic-clonic seizure.

~~12. A method of treatment comprising administering to a subject in need of treatment a therapeutically effective amount of the compound of claim 1 or the pharmaceutical composition of claim 2 or claim 3.~~

12. Use of the compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, in the manufacture of a medicament for treating epilepsy.

13. Use of the compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, in the manufacture of a medicament for treating generalised seizure.

14. Use of the compound of claim 1, or the pharmaceutical composition of claim 2 or claim 3, in the manufacture of a medicament for treating tonic-clonic seizure.