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**Reynbery et al.**

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(54) **CANNABIS PLANT NAMED ‘PCT11204V’**

(50) Latin Name: *Cannabis sativa*  
Varietal Denomination: **PCT11204V**

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See application file for complete search history.

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(57) **ABSTRACT**

A new and distinct variety of *Cannabis sativa* designated ‘PCT11204V’ as herein described and illustrated, characterized by elevated levels of THCV and other varin cannabinoids.

**1 Drawing Sheet**

**1**

Genus/species: *Cannabis sativa*.  
Variety denomination: ‘PCT11204V’.

**BACKGROUND OF THE INVENTION**

*Cannabis* plants contain over a hundred known cannabinoids, which bind to endogenous endocannabinoid receptors. Varinolic cannabinoids, known as varins, are a type of cannabinoid compound having three carbon atoms in their alkyl side chain instead of the five carbon atom alkyl side chains more commonly associated with cannabinoids. Two such varins are tetrahydrocannabivarin (THCV) and cannabidivarin (CBDV), which are homologues of tetrahydrocannabinol (THC) and cannabidiol (CBD), respectively. Each varin has a unique pharmacological profile and distinct molecular targets.

THCV and CBDV have potential benefits across a broad set of applications. *Cannabis* plants or extracts with high THCV levels, for example, can be used as an agent for anticonvulsant activity, obesity-associated glucose intolerance, appetite suppression, anxiety management for PTSD, diabetic neuropathy, and major neuropathic and pain related pathologies. Another THCV application is that of an appetite suppressing compound. CBDV has been shown to have anti-epileptic and anticonvulsant activity.

**2**

Research and development as well as the sale of varin products has been limited due to low commonly occurring levels of varins in *Cannabis* flower. The ability to produce *Cannabis* with high varin levels will create a platform for a new Cannabinoid category with differentiated, high margin products in both medical and recreational markets. The present invention solves these problems by providing a novel *Cannabis* plant having high varin levels, which is referred to by the variety name ‘PCT11204V’.

**BRIEF SUMMARY OF THE INVENTION**

The new variety of *Cannabis sativa* was created by sourcing *Cannabis* plants that produce THCV. All breeding, cultivation, and chemotype analyses were conducted by a contract research organization under contract for the Applicant. Crosses were then conducted to elevate further THCV and other varins. The plants are crossed to produce new varieties that are selected to further elevate THCV levels. Progeny are chemically analyzed to select those having elevated THCV levels, and then either (1) backcrossed to the high-yielding THCV parent to ensure additional progeny can be selected for increased THCV production, or (2) selfed to fix genetic loci associated with THCV levels to ensure additional progeny can be selected for increased THCV production. Marker-assisted selection may be used further to



identify candidate progeny expected to have elevated THC<sub>V</sub> levels for subsequent crosses to ensure selection of progeny having the highest THC<sub>V</sub> levels. All chemical analyses were conducted using High Performance Liquid Chromatography to detect the cannabinoids described herein. The present invention is a selection resulting from the cross of a high THC<sub>V</sub> pollen receiver plant (“20VLDY-1002-3”) and a high THC pollen donor plant (“20TP1B-1008-1”). Parent cultivar 20VLDY-1002-3 is a late maturing (>12 weeks) cultivar with long internode lengths, flowers with low trichome density, a THC<sub>V</sub> content of 4-6%, and a THC content of 4-6%. Parent cultivar 20TP1B-1008-1 is similar to typical cultivated cultivars, with a maturity of 9 weeks from flower initiation, moderate internode lengths, a THC content of 21%, and a THC<sub>V</sub> content of 1%. Ninety seeds of variety “THC-Victory” were planted Aug 17, 2020. From this population, one plant designated “20VLDY-1002-3” of THC content 11.9% and THC<sub>V</sub> content 13.96% was selected and cloned for future crosses. 24 seeds of variety “Guicy Banger” were planted Jun. 19, 2020. From this population, one plant designated “20TP1B-1008-1” of THC content 20.66% and THC<sub>V</sub> content 1.16% was selected and cloned for future crosses. A clone of 20TP1B-1008-1 was crossed onto a clone of 20VLDY-1002-3 in the spring of 2021. 144 of the resulting F1 seeds were sown May 14, 2021. The present invention was discovered and selected as a single plant from this F1 seed and was subsequently propagated clonally at a contract research organization under contract for the Applicant. The selection was subsequently evaluated for five cycles at a contract research organization under contract for the Applicant. Individual plants were propagated in an indoor facility with supplemental lighting. Plants are transferred to a mixed-light greenhouse once established. Asexual reproduction of the new variety by stem cutting propagation since 2021 at the contract research organization under contract for the Applicant, and has demonstrated that the new variety reproduces true to type with all the characteristics, as herein described and are, firmly fixed and retained through successive generations of asexual propagation.

The new variety is named ‘PCT11204V’ and is characterized as having elevated varin levels.

BRIEF DESCRIPTION OF THE PHOTOGRAPH

FIG. 1 is a color image of the entire plant of a 89 day old flowering plant of the variety ‘PCT11204V’ taken at a contract research organization under contract for the Applicant.

DETAILED BOTANICAL DESCRIPTION

The following is a detailed description of the new *Cannabis* variety known as ‘PCT11204V’.

All breeding, cultivation, and chemotype analyses were conducted by a contract research organization under contract for the Applicant.

*Cannabis* plants having elevated THC<sub>V</sub> levels were sourced and obtained, and crosses were conducted to further elevate THC<sub>V</sub> levels. The plants were crossed to produce new varieties that were selected to further elevate THC<sub>V</sub> levels. Plant variety ‘PCT11204V’ was selected and asexually reproduced.

Table 1 describes the general characteristics of ‘PCT11204V’ at 60 days after lighting was changed to a

12/12 light cycle. Color codes are derived from The Royal Horticultural Society (R.H.S.) Color Chart.

TABLE 1

Plant life forms	An herbaceous plant (herb)
Plant growth habit	An upright, tap-rooted annual plant, forming fibrous roots when asexually propagated
Plant origin	A controlled cross between female parent 20VLDY-1002-3 (unpatented) and male parent 20TP1B-1008-1 (unpatented)
Plant propagation	Asexually propagated by replanting of apical and sub-apical semi-heraceous stem cuttings
Propagation Ease	Easy
Height	1-1.3 m
Width	0.7-0.9 m
Plant shape	Simple erect
Time to harvest	10-12 weeks
Resistance to pests or diseases	Unknown
GMO?	No

Table 2 describes the leaf/foliage of ‘PCT11204V’.

TABLE 2

Leaf Arrangement	Alternate
Leaflet Type	Palmately compound
Leaflet Structure	Serrated margins, lightly acicular to lanceolate leaflets, tapering to an acuminate apex
Leaflet Margins and Base	Margins are jaggedly serrate with each tooth apex angled toward leaflet apex; and base is attenuate.
Leaflet hairs	Present on both upper and lower surfaces
Leaf length with petiole at maturity	14-22 cm
Petiole length and diameter at maturity	Length is 3.6-6.5 cm and diameter is 1-2 mm
Petiole color	45C
Anthocyanin color and intensity in Petioles	Color is 47C and intensity in Petioles is medium in vegetative stage; strong in flowering stage
Stipule length and width at maturity	Length is 0.3-0.7 cm width is <1 mm
Stipule shape	Linear with slight curvaceous growth
Stipule color	149C
No. of leaflets	3-7
Middle largest (longest) leaflet length	11.5-15.2 cm
Middle largest (longest) leaflet width	2.5-3.2 cm
Middle largest (longest) leaflet length/width ratio	4.5-4.8
No. teeth of middle leaflet	20-26
Leaflet (upper side-adaxial) color	140A
Leaflet (lower side-abaxial) color	135D
Leaflet glossiness	Slightly glossy on the upper surface
Vein/midrib shape	Obliquely continuous throughout leaflet
Vein/midrib color	149D
Venation pattern	Pinnately veined leaflets
Aroma	Pleasantly pungent aromatic, strong, peculiar smell with a hint of cleaning solution scent

Table 3 describes the stem of ‘PCT11204V’.

TABLE 3

Stem description	Hollow and ribbed
Stem diameter at base	1.5 cm
Stem color	142A
Stem length	90-110 cm

TABLE 3-continued

Stem texture	Smooth with shallow grooves
Stem strength	Strong and upright
Depth of main stem ribs/grooves	Shallow
Internode length	2.5-10 cm

Table 4 describes the inflorescence of ‘PCT11204V’.

TABLE 4

Inflorescence type	Elongated compound cymes with the natural flowering season being Autumn
Proportion of female plants	100% pistillate
Inflorescence position	Terminal and axillary
Inflorescence number per plant	100-150
Inflorescence length	2-10 cm
Flower arrangement	Cymose
Numbers of flowers per plant	Hundreds to thousands flowers per plant, multitudinous, congested with high concentrations on bushier wide inflorescence
Flower shape	Urceolate
Flower (individual pistillate) length	5-6 mm
Flower (compound cyme) diameter	8.5-10.0 cm
Typical and observed flower depth	2-4 mm
Corolla	No defined corolla
Corolla color	N/A
Bract shape	Urceolate
Bract color upper surface	135C
Bract color lower surface	135C
Bract number	3-200 bracts per inflorescence
Bract length	3-5 mm
Bract width	2-3 mm
Bract apex	Caudate apex
Bract base descriptors	Rounded base
Bract texture	Smooth and covered with sticky trichomes
Calyx shape	No defined calyx
Calyx color	N/A
Stigma shape	Acute
Stigma length	5-7 mm
Stigma width	<1 mm
Stigma color	140B
Number of stigmas per flower	2
Trichome shape	Capitate-stalked glandular
Trichome color	NN155B
Terminal bud shape	Oblong
Terminal inflorescence length	18-24 cm
Terminal inflorescence diameter	7-10 cm
Terminal bud color	140A, 140B, and 140C
Pedicel	Absent
Peduncle length	1-8 mm
Peduncle diameter	2-3 mm
Peduncle texture	Lightly ribbed
Peduncle color	145A
Staminate shape	No staminate flowers produced naturally; however, male flower (staminate) can be induced with stress or ethylene-blocking compounds
Sepal color	NA
Pollen description	NA
Seed shape	Striped, smooth and globular
Seed size	1.6 - 2.3 mm

TABLE 4-continued

Petal description	Apetalous
Pistil number per flower	one
Pistil length	10-12 mm
Bracteole	Not present

Table 5 describes other characteristics of ‘PCT11204V’.

TABLE 5

Time period of flowering/ blooming	10-12 weeks
Proportion of hermaphrodite plants	Lower (<5%) in clones
Hardiness of plant	Hardy to tolerate of warm and dry conditions without showing stress. Not tolerant to soil oversaturated with water for long periods

Chemical analyses were conducted using High Performance Liquid Chromatography to detect the cannabinoids described herein. Table 6 describes a chemotype and terpene analysis of ‘PCT11204V’, which was chemotyped by taking a sample from the main cola at day 83 after initiation of the 12:12 light cycle, which initiates flowering. Trichomes were 65% cloudy and 1% amber, indicative of full maturity at sampling.

TABLE 6

Cannabinoid data for ‘PCT11204V’ (day 83 after flowering onset).	
Cannabinoid	% wt
Tetrahydrocannabivarinic acid (THCVA)	15.6
THCV	0.28
Total THCV	140
Cannabidivarinic acid (CBDVA)	0.1
CBDV	<LOD
Total CBDV	0.09
Total THCV + Total CBDV (= Total Varins)	14.0
Total THC + Total CBD (= Total Cannabinoids)	11.9
Total Varins/Total Cannabinoids	1.18
Tetrahydrocannabinolic acid (THCA)	13.3
Delta-9-tetrahydrocannabinol (D9-THC)	0.2
Total THC	11.9
Cannabidiolic acid (CBDA)	<LOD
CBD	<LOD
Total CBD	<LOD
THC:CBD ratio	Undefined value due to null value in denominator
beta-myrcene	0.9-2.8%
beta-caryophyllene	0.3-0.5%
ocimene	0.3-0.8%
bisabolol	0.08-0.14%
alpha-humulene	0.08-0.15%

“<LOD” refers to an undetectable analyte that is below the limit of detection.

What is claimed is:

1. A new and distinct variety of *Cannabis sativa* plant designated ‘PCT11204V’ as herein described and illustrated.

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