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(54) **Titre : COMETE DE HAYLEY II**
(54) **Title: HAYLEY'S COMET II**

(57) **Abrégé/Abstract:**

A new cultivar of medical cannabis has been bred that renders relatively large amounts of cannabidiolic acid (mg/gram ground flower weight)...greater than 10%. The cultivar moved from an outdoor to indoor environment produced similar levels of cannabidiolic acid (CBD-A) and similar cannabinoid profiles. Reproduced asexually, the same (greater than 10%) cannabidiolic acid amounts were rendered and this remains constant crop to crop. THC levels do not change between 20 and 30% of that of the CBD-A concentration. High Pressure Liquid Chromatography (HPLC) determines cannabinoid profiles where the amounts of the three most abundant cannabinoids (tetrahydrocannabinol, cannabinol, and cannabidiol) and their acids are quantified. The cannabinoid profile relates directly to the physiological effects of the plant as a medicine. In addition, a genetic fingerprint of the strain has been generated using gel electrophoresis. Strains high in cannabidiolic acid are rare since breeding has favored the high THC strains for their psychoactive effects (recreational cannabis). Hayley's Comet II provides a unique cannabinoid profile containing large concentrations of CBA-A making it useful for medicaments for seizure disorder, pain and inflammation.



Abstract:

A new cultivar of medical cannabis has been bred that renders relatively large amounts of cannabidiolic acid (mg/gram ground flower weight)...greater than 10%. The cultivar moved from an outdoor to indoor environment produced similar levels of cannabidiolic acid (CBD-A) and similar cannabinoid profiles. Reproduced asexually, the same (greater than 10%) cannabidiolic acid amounts were rendered and this remains constant crop to crop. THC levels do not change between 20 and 30% of that of the CBD-A concentration. High Pressure Liquid Chromatography (HPLC) determines cannabinoid profiles where the amounts of the three most abundant cannabinoids (tetrahydrocannabinol, cannabiol, and cannabidiol) and their acids are quantified. The cannabinoid profile relates directly to the physiological effects of the plant as a medicine. In addition, a genetic fingerprint of the strain has been generated using gel electrophoresis. Strains high in cannabidiolic acid are rare since breeding has favored the high THC strains for their psychoactive effects (recreational cannabis). Hayley's Comet II provides a unique cannabinoid profile containing large concentrations of CBA-A making it useful for medicaments for seizure disorder, pain and inflammation.

Background of the Invention:

Patent No. 2694325 speaks to synthetic analogues of Cannabidiol; the invention described here refers to natural cannabidiolic acid compounds and their decarboxylated derivatives.

Patent No. 2499210 speaks to cannabidiol in a highly pure form, greater than 95%, that can be used in medical studies, whereas the invention described here is a means of obtaining cannabidiolic acid in its natural form, plus inclusion of the other natural cannabinoids.

Patent No. 2411831 speaks to uses of cannabidiol in pure form, the invention described here addresses cannabidiolic acid in its natural form and means of obtaining CBD-A.

Patent No. 2424356 speaks to extraction of tetrahydrocannabinol and cannabidiol using super critical fluid extraction whereas the invention described here employs not extraction of compounds from the plant.

Patent No. 2692539 speaks to ratios of cannabidiol to cannabivarin as antagonists to the CB1 and CB2 receptors, whereas the invention described here is merely a continues source of cannabidiolic acid and other carboxylated cannabinoids.

A strain of cannabis with high concentrations of cannabidiolic acid was bred, whereby with asexual reproduction cannabidiolic acid concentrations (as determined by HPLC) remains consistent and the genetic fingerprint remains inimitable within cannabis subspecies. The DNA profile was generated using gel electrophoresis and compared to a number of common strains of similar type. The unique DNA fingerprint plus the cannabinoid profile characterize the strain, plus morphological description, cloning, growth and pest resistance add to distinguishing this plant form others of its type.

Objectives of the Invention:

- 1.) An objective of the invention is to preserve a strain of cannabis with unique cannabinoid and DNA profiles, represented by high cannabidiolic acid to tetrahydrocannabinolic acid ratios.
- 2.) A further objective of the inventions is to preserve a strain of cannabis with high ratios of CBD-A to THC-A to be used in medicaments.
- 3.) A further objective of the invention is to propagate the strain for yields of CBD-A
- 4.) A further objective of the invention is to propagate the strain for use in medicaments for chronic pain and seizure disorder.
- 5.) A further objective of the invention is to propagate a strain with consistent cannabinoid profiles of high CBD-A to THC-A ratios.
- 6.) A further objective of the invention is to use this strain to breed other strains with a similar high CBD-A to THC-A ratio.

Summary of the Invention

A single cultivar of cannabis has been bred with distinct HPLC and DNA profiles. The cultivar is asexually reproduced with cloning such that a cannabinoid profile with greater than 100 mg/gram (of ground, dried, flower weight) CBD-A is consistently produced and the THC concentration consistently less than 150 mg/gram, of ground flower weight.

Claims:

Claim 1: A method whereby a unique cannabinoid profile as determined by High Pressure Liquid Chromatography (HPLC), defines a specific cultivar of asexually reproducing cannabis.

Claim 2: A method whereby a genetic profile (fingerprint), defines a specific cultivar of asexually reproducing cannabis.

Claim 3: A method whereby a cannabidiolic acid concentration of greater than 100 mg/gram (of ground flower weight), is consistently found in the specific cultivar.

Claim 4: A method whereby a tetrahydrocannabinol concentration of less than 15% (of ground flower weight), is consistently found in the specific cultivar of asexually reproducing cannabis.

Claim 5: A method whereby the DNA profile at locus Cind 16FR (bp) differs from other comparable strains and having a distinct fragment pattern characteristic of the cultivar.

Claim 6: A method whereby the DNA profile at locus Cind1FR differs from other comparable strains and having a distinct fragment pattern characteristic of the cultivar.

Claim 7: A method whereby the DNA profile at locus Cind5 differs from other comparable strains and having a distinct fragment pattern characteristic of the cultivar.

Claim 8: A method whereby the DNA profile at locus Cind24FR differs from other comparable strains and having a distinct fragment pattern characteristic of the cultivar.

Claim 9: The cultivar (Hayley's Comet), described here provides a cannabinoid profile useful in the treatment of epilepsy, chronic pain and inflammation.

Figures:

Figure 1: Typical HPLC cannabinoid profile of Hayley's Comet

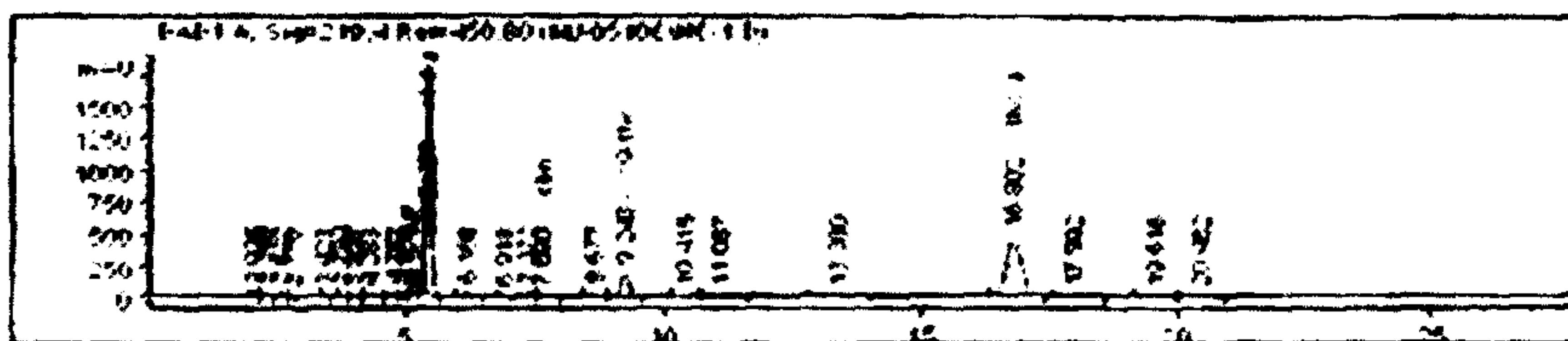


Figure 1: demonstrates the unique cannabinoid profile of Hayley's Comet, noting the greater than 3:1 ratio of CBD-A to THC-A.

Table 1: Genetic Profile of Hayley's comet

	Cind 16FR (bp)	Cind1FR	Cind5	Cind24FR
Hayley's comet	84 88 90 104 108	214 224	215 324	144 167
Cind1	96 102 108	214 214	173 226	221 221
Blueberry	88 90 102 108	212 212	220 320	193 193
Upick	88 90 108 110	226 226	200 320	187 187

Table 1: demonstrates the 4-locus DNA profile (Cind1FR, Cind5FR, Cind16FR, and Cind24FR) for Hayley's comet. Across the table the differences in fragment size for the 4 plants compared (HC, Cind1, Blueberry and Upick). Each number corresponds to an 'allele' located in the cannabis genome. One locus is complex (Cind16FR) and gives rise to more than two alleles (3-5) while the other three loci (1,5, and 24) are typical diploids, either homozygous where allele sizes are the same, or heterozygous where the two allele are different.

Claim 9: The cultivar (Hayley's Comet), described here provides a cannabinoid profile useful in the treatment of epilepsy.