HIGH NORTH ID:
00361978
Date: 2023-08-31
Certificate: 1693499320

High North Inc.
241 Hanlan Rd, Unit 7
Woodbridge, ON, L4L 3R7
1-416-864-6119
LIC-P4PNJMAC20-2022

Client:	Sweedies Cannabis Inc. 862 Armentiers Road, Sorrento, BC, V0E 2W1	Product:	Grape Krush
		Lot:	Batch 517
		Matrix:	Flower
Name:	Carlo DeMarni 250-517-0601 cdd@sweediesmj.com	Sub-matrix:	Dried Flower
		Sampled:	2023-07-24
		Received:	2023-07-26

Certificate of Analysis

Cannabinoid Analysis	LOD (%)	LOQ (%)	wt%	mg/g
Total THC [(THCA x 0.877) + D9-THC]			21.1612	211.6116
Total CBD [(CBDA x 0.877) + CBD]			0.0617	0.6164
THCA-A	0.015	0.06	23.7290	237.2895
CBGA	0.015	0.06	0.6994	6.9936
D9-THC	0.015	0.06	0.3509	3.5087
CBG	0.015	0.06	0.1507	1.5071
CBDA	0.015	0.06	0.0703	0.7029
CBC	0.015	0.06	ND	ND
D8-THC	0.015	0.06	ND	ND
CBN	0.015	0.06	ND	ND
THCV	0.015	0.06	ND	ND
CBD	0.015	0.06	ND	ND
CBDV	0.015	0.06	ND	ND
Total of all quantified cannabinoids:			25.0003	250.0018

Terpene Analysis	LOD (%)	LOQ (%)	wt%
(R)-(+)-Limonene	0.0006	0.005	0.5843
Beta-Myrcene	0.0004	0.005	0.2816
Trans-Caryophyllene	0.0011	0.005	0.1883
Farnesene*	0.0029	0.010	0.1825
Linalool	0.0006	0.005	0.1555
Beta-Pinene	0.0004	0.005	0.0737
Alpha-Terpineol	0.0007	0.005	0.0693
(R)-Endo-(+)-Fenchyl Alcohol	0.0005	0.005	0.0579
Alpha-Humulene	0.0002	0.005	0.0578
Alpha-Bisabolol	0.0011	0.005	0.0496
Alpha-Pinene	0.0002	0.005	0.0490

Abbreviations: wt% = percentage of weight, CFU = colony forming units, ppm = Parts per million, ppb = Parts per billion, ND = None Detected, BLQ = Below Limit of Quantification, LOQ = Limit of Quantification, LOD = Limit of Detection, RL = Reporting Limit, * = Mixture of Isomers

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Terpene Analysis	LOD (%)	LOQ (%)	wt%
trans-Nerolidol	0.0005	0.005	0.0164
Camphene	0.0009	0.005	0.0140
Terpinolene	0.0005	0.005	0.0071
Caryophyllene oxide	0.0009	0.005	0.0069
Borneol	0.0005	0.005	0.0065
Farnesol*	0.0032	0.010	BLQ
Sabinene Hydrate	0.0006	0.005	BLQ
Fenchone	0.0003	0.005	BLQ
Squalene	0.0015	0.005	ND
Phytol*	0.0030	0.010	ND
Nootkatone	0.0009	0.005	ND
Phytane	0.0006	0.005	ND
(+)-Cedrol	0.0004	0.005	ND
Guaiol	0.0013	0.005	ND
cis-Nerolidol	0.0012	0.005	ND
Valencene	0.0006	0.005	ND
Eugenol	0.0010	0.005	ND
Alpha-Cedrene	0.0004	0.005	ND
Geranyl acetate	0.0007	0.005	ND
Carvacrol	0.0005	0.005	ND
Thymol	0.0006	0.005	ND
d-Valerolactam (2-piperidone)	0.0015	0.005	ND
(-)-Piperitone	0.0012	0.005	ND
Isobornyl Acetate	0.0005	0.005	ND
Carvone	0.0006	0.005	ND
Pulegone	0.0006	0.005	ND
Verbenone	0.0006	0.005	ND
Citral*	0.0015	0.005	ND
Geraniol	0.0005	0.005	ND
Safranal	0.0004	0.005	ND
Nerol	0.0007	0.005	ND
Citronellol	0.0008	0.005	ND
Octyl Acetate	0.0005	0.005	ND
Terpinen-4-ol	0.0017	0.005	ND
Camphor	0.0005	0.005	ND
Isoborneol	0.0005	0.005	ND
Menthol (Hexahydrothymol)	0.0013	0.005	ND
Menthone*	0.0015	0.005	ND
Isopulegol	0.0010	0.005	ND
Alpha-Thujone	0.0010	0.005	ND
Gamma-Terpinene	0.0002	0.005	ND
Eucalyptol	0.0011	0.005	ND
Cymene*	0.0004	0.005	ND

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Ryan Lee
Quality Assurance

Terpene Analysis	LOD (%)	LOQ (%)	wt%
Ocimene	0.0017	0.005	ND
Alpha-Terpinene	0.0004	0.005	ND
Alpha-Phellandrene	0.0010	0.005	ND
(1S)-3-Carene	0.0009	0.005	ND
Sabinene	0.0003	0.005	ND
Total of all quantified terpenes:			1.800

Moisture Analysis 10.41%

Foreign Matter Analysis None Detected

Mycotoxin Analysis	LOD (ppb)	LOQ (ppb)	RL (ppb)	Result (ppb)	Status
Aflatoxin-B1	0.5000	2	2	ND	PASS
Aflatoxin-B2	0.5000	2		ND	PASS
Aflatoxin-G1	0.3000	2		ND	PASS
Aflatoxin-G2	0.6000	2		ND	PASS
Sum of Aflatoxins:			4	0	PASS
Ochratoxin-A	5.6000	20	20	ND	PASS

Microbial Analysis	LOD (CFU/g)	RL (CFU/g)	Result (CFU/g)	Status
Total Aerobic Count	12	200	ND	PASS
Total Yeast and Mold Count	1.8	20	ND	PASS
Bile-Tolerant Gram-Negative			Absent in 1g	PASS
S.aureus/P.aeruginosa			Absent in 1g	PASS
Salmonella			Absent in 10g	PASS
E.coli			Absent in 1g	PASS

Heavy Metals Analysis	LOD (mg/kg)	LOQ (mg/kg)	RL (mg/kg)	Result (mg/kg)	Status
Arsenic	0.034	0.200	3.0	ND	PASS
Cadmium	0.016	0.058	0.5	ND	PASS
Lead	0.014	0.493	5.0	ND	PASS
Mercury	0.009	0.061	0.5	ND	PASS

Total Ash 9.7381%

Sample Appearance Green, medium dried buds.

Comments

This COA cancels and supersedes certificate ID 1691516527 dated 2023-08-28.
Testing has been conducted as per TGO specifications.
Total Ash reporting limit is NMT 20% as per TGO 93.
Foreign Matter reporting limit is NMT 2% as per TGO 93.
Refer to 2023-OOS-328-MICRO.

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EP 2.8.13 Pesticides	LOD (ppm)	RL (ppm)	Result
Acephate	0.0422	0.1	ND
Alachlor	0.017	0.05	ND
Aldrin and Dieldrin (Sum of)	0.0238	0.05	ND
Azinphos-ethyl	0.0416	0.1	ND
Azinphos-methyl	0.1154	1	ND
Bromophos-ethyl	0.0241	0.05	ND
Bromophos-methyl	0.0195	0.05	ND
Bromopropylate	0.0874	3	ND
Chlordane (Sum of cis-, trans - and oxychlordane)	0.0236	0.05	ND
Chlorfenvinphos	0.0694	0.5	ND
Chlorpyriphos-ethyl	0.0396	0.2	ND
Chlorpyriphos-methyl	0.0281	0.1	ND
Chlorthal-dimethyl	0.0032	0.01	ND
Cyfluthrin (Sum of)	0.03	0.1	ND
Cypermethrin and isomers (Sum of)	0.0632	1	ND
DDT (Sum of o,p'-DDE, p,p'-DDE, o,p'-DDT, p,p'-DDT, o,p'-TDE and p,p'-TDE)	0.2493	1	ND
Deltamethrin	0.1299	0.5	ND
Diazinon	0.0836	0.5	ND
Dichlofluanid (Deg)	0.0341	0.1	ND
Dichlorvos	0.0589	1	ND
Dicofol deg. (DCBP)	0.1476	0.5	ND
Dimethoate and Omethoate (Sum of)	0.0416	0.1	ND
Dithiocarbamates	0.1133	2	ND
Endosulfan (sum of isomers and endosulfan sulfate)	0.0836	3	ND
Endrin	0.0113	0.05	ND
Ethion	0.0474	2	ND
Etrimphos	0.019	0.05	ND
Fenchlorophos (Sum of fenchlorophos and fenchlorophos-oxon)	0.0498	0.1	ND
Fenitrothion	0.1398	0.5	ND
Fenpropathrin	0.0084	0.03	ND
Fensulfothion (Sum of fensulfothion, fensulfothion-oxon, fensulfothion-oxonsulfon and fensulfothion-sulfon)	0.0247	0.05	ND
Fenthion (sum of fenthion, fenthion-oxon, fenthion-oxon-sulfon, fenthion-oxon-sulfoxid, fenthion-sulfon and fenthion-sulfoxid)	0.0246	0.05	ND
Fenvalerate	0.1202	1.5	ND
Flucytrinate	0.0245	0.05	ND
Fonophos	0.0205	0.05	ND

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EP 2.8.13 Pesticides	LOD (ppm)	RL (ppm)	Result
Heptachlor (sum of heptachlor, cis-heptachlorepoxide and trans-heptachlorepoxid)	0.023	0.05	ND
Hexachlorobenzene	0.0204	0.1	ND
Hexachlorocyclohexane (Sum of a-,b-, d- and e)	0.1396	0.3	ND
Lambda-Cyhalothrin	0.086	1	ND
Lindan (gamma-hexachlorocyclohexane)	0.0574	0.6	ND
Malathion and Malaoxon (Sum of)	0.1445	1	ND
Mecarbam	0.0133	0.05	ND
Methacriphos	0.024	0.05	ND
Methamidophos	0.0203	0.05	ND
Methidathion	0.0273	0.2	ND
Methoxychlor	0.0204	0.05	ND
Mirex	0.0031	0.01	ND
Monocrotophos	0.0438	0.1	ND
Parathion-ethyl and Paraoxon-ethyl (Sum of)	0.1292	0.5	ND
Parathion-methyl and Paraoxon-methyl (Sum of)	0.0461	0.2	ND
Pendimethalin	0.0463	0.1	ND
Pentachloroanisole	0.0023	0.01	ND
Permethrine and isomers (Sum of)	0.0492	1	ND
Phosalone	0.0324	0.1	ND
Phosmet	0.0209	0.05	ND
Piperonyl butoxide	0.126	3	ND
Pirimiphos-ethyl	0.0237	0.05	ND
Pirimiphos-methyl (sum of pirimiphos-methyl and N-desethyl-pirimiphos-methyl)	0.1332	4	ND
Procymidone	0.0404	0.1	ND
Profenophos	0.0422	0.1	ND
Prothiophos	0.0166	0.05	ND
Pyrethrum (sum of cinerin I, cinerin II, jasmolin I, jasmolin II, pyrethrin I and pyrethrin II)	0.1233	3	ND
Quinalphos	0.0177	0.05	ND
Quintozene (sum of quintozene, pentachloraniline and methyl penthachlorphenyl sulfide)	0.0804	1	ND
S-421	0.0093	0.02	ND
Tau-Fluvalinate	0.0181	0.05	ND
Tecnazene	0.0183	0.05	ND
Tetradifon	0.1194	0.3	ND
Vinclozolin	0.1031	0.4	ND

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Identification A (Macroscopic)

Bracts and flowers of the overall inflorescence form the flattened branched raceme in which each branch has more than one flower. This highly compressed panicle is approximately 1 to 5 cm in length and width

The flower husks are green to light green, covered with dense yellow-white hairs, and stuck together with resin. The flower is about 5 to 10 mm long, consisting of a hooded, green to light green bloom.

Light brown to brown pistils and stigma branches, within an individual flower, having an overall length of up to 1 cm.

The crumbled inflorescence contains peduncle fragments, bracts, and panicle sections, as well as individual flowers and flower organs.

Bracts and all flower organs, except pistils, are more or less densely covered with excreted resin-adhesive glandular hairs.

Singular brown ovule contained within the base of the flower with two thin stigma protrusions

Identification B (Microscopic)

Isolated Stalks

Isolated Heads

Multicellular gland stalks observed from below

Large, tapered covering trichomes of different lengths and with very thick cell walls isolated or on an epidermis, sometimes with cystoliths

The upper epidermis having polygonal or sinuate anticlinate cell walls, the cystolith trichomes having very thick, in some cases verrucose cell walls, the cystoliths can be seen as botryoid structures, the palisade parenchyma is visible below the epidermis; bract fragments having fine, unicellular covering trichomes. (Top and Side view)

Leaf fragment with sinuate or wavy, beaded anticlinal cell walls of the lower epidermis, with anomocytic stomata; leaf fragments densely covered with contact points for the pluricellular stalks of the large glandular hairs; leaf fragments densely covered with points of attachment of multiple-cell stalks of the large glandular trichomes; leaf fragments with many cluster crystals of calcium oxalate in mesophyll

Vessels within the leaf fragments have helicoidally thickened cell walls; the leaf epidermises may have small glandular trichomes with a unicellular stalk and a unicellular to pluricellular head, or stalkless glandular hairs having cells arranged actinomorphically

Peduncle fragments having covered trichomes, helicoidal vessels and rows of crystal cells containing calcium oxalate cluster; the upper epidermis of which has cells with straight or slightly sinuate cell walls, and the lower epidermis of which has highly undulating anticlinate cell walls

Bract fragments having short, broad cystolith hairs on the upper epidermis

Identification C (Chromatographic)

The retention time of the THCA peak in the chromatogram of the Assay preparation corresponds to the expected retention time of THCA (Conforms).

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Details of Testing

Cannabinoid Analysis

LAB-MTD-020: Determination of 11 Cannabinoids in Cannabis Flower (LOQ 0.06%), Fresh Flower (LOQ 0.015%), Oil (LOQ 0.03%) and Concentrates (LOQ 0.6%) by HPLC and UHPLC
LAB-MTD-021: Determination of Cannabinoids of Individually Isolated Sample by HPLC/UHPLC
LAB-MTD-023: Determination of 11 Cannabinoids in Cannabis Tablets and Granules (LOQ 0.025%) by HPLC/UHPLC
LAB-MTD-030: Determination of 11 Cannabinoids in Cannabis Topicals (LOQ 0.005%) by HPLC/UHPLC
LAB-MTD-039: Determination of 11 Cannabinoids in Cannabis Edibles; Liquid Edibles (LOQ 0.0005%) and Solid Edibles (LOQ 0.005%) by HPLC
LAB-MTD-051: Assay of Cannabinoids in Cannabis Flower as per DAB by HPLC
LAB-MTD-052: Identification of CBD and THCA as per DAB by Thin-Layer Chromatography

Terpene Analysis

LAB-MTD-044: Determination of Terpene Content in Cannabis Dried Flower, Fresh Flower and Extracts by GC-MS

Pesticide Analysis

LAB-MTD-010: Determination of Health Canada Pesticide Residues and Toxins in Dried Cannabis Flower by LC-MS/MS and GC-MS/MS
LAB-MTD-040: Determination of EP Pesticide Residues in Cannabis Oil and Related Products by GC-MS/MS
LAB-MTD-041: Determination of EP Pesticide Residues in Cannabis Flower and Related Products by GC-MS/MS
LAB-MTD-046: Determination of Health Canada Pesticides and Toxins in Cannabis Extracts by LC-MS/MS
LAB-MTD-048: Determination of Health Canada Pesticide Residues and Toxins in Fresh Cannabis Flower by LC-MS/MS and GC-MS/MS

Mycotoxin Analysis

LAB-MTD-010: Determination of Health Canada Pesticide Residues and Toxins in Dried Cannabis Flower by LC-MS/MS and GC-MS/MS
LAB-MTD-029: Determination of Toxins in Tablet Samples by LC-MS/MS
LAB-MTD-037: Determination of Mycotoxins in Topical/Cream Samples by LC-MS/MS
LAB-MTD-046: Determination of Health Canada Pesticides and Toxins in Cannabis Extracts by LC-MS/MS
LAB-MTD-048: Determination of Health Canada Pesticide Residues and Toxins in Fresh Cannabis Flower by LC-MS/MS and GC-MS/MS

Flavonoid Analysis

LAB-MTD-045: Determination of Flavonoids in Cannabis Dried Flower, Fresh Flower, and Extracts by LC-MS/MS

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Details of Testing

Microbial Analysis
MIC-MTD-001: Microbial Analysis of Cannabis Flower and Oil by qPCR
MIC-MTD-006: Determination of Viruses in Cannabis via qPCR and ELISA
MIC-MTD-007: Microbial Analysis of Cannabis by Culture Techniques
MIC-MTD-009: Cannabis Gender Determination by qPCR
MIC-MTD-010: Identification A and Identification B of Cannabis by DAB Monograph
MIC-MTD-011: Analysis of Shigella Species in Cannabis and Cannabis Infused Products
MIC-MTD-008: Analysis of Listeria Monocytogenes in Cannabis and Cannabis Infused Products

Moisture Analysis
LAB-MTD-017: Determination of Moisture Content in Cannabis Flower
LAB-MTD-031: Water Activity Meter Setup and Operation
LAB-MTD-053: Determination of Moisture Content by Loss on Drying Technique using Vacuum Oven

Sample Appearance and Foreign Matter
LAB-MTD-022: Sample Appearance and Detection of Foreign Matter Content in Cannabis Samples

Total Ash Analysis
LAB-MTD-043: Total Ash by Muffle Furnace in Cannabis Products

Residual Solvents Analysis
LAB-MTD-036: Determination of Residual Solvents in Cannabis Oil by GC-MS
LAB-MTD-028: Determination of Residual Solvents in Tablet Samples by GC-MS
LAB-MTD-034: Determination of Propane and Butane in Cannabis Oil by GC-MS
LAB-MTD-038: Determination of Toluene in Cannabis Isolate by GC-MS
LAB-MTD-054: Determination of Acetic Acid in Flavour, Cannabis Vape Mix Oil and Cannabis Infused Flower by GC-MS

Peroxide Value, p-Anisidine and Acidity (FFA) Analysis
LAB-MTD-049: Determination of Peroxide Value, p-Anisidine, and Acidity (FFA)

Heavy Metal Analysis
LAB-MTD-027: Determination of Heavy Metals in Cannabis Samples (Cream/Topicals, Tablets and Edibles) by ICP-MS
LAB-MTD-050: Multi-Element Analysis of Cannabis Dried Flower, Fresh Flower, Extracts, and Rolling Papers by ICP-MS

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