

JHG ANALYTICAL SERVICES LIMITED

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**30<sup>th</sup>. January 2020**

**Re. Testing Methods on behalf of Hubotanicals Limited Cold-Pressed Hemp Oils.**

To Whom it may concern,

This is to certify that JHG Analytical Services Limited is contracted by our client Hubotanicals Limited to provide all their Independent Laboratory Analytical Program for their entire range of Hemp/CBD Oil products.

The standard of testing is to a level where it allows us to consistently achieve Recovery ratios of the order of 90-95% for Cannabinoids, where validity of any test in this area would require a Recovery of the order of greater than 85%.

During all Analytical Programmes of CBD Hemp samples of all forms (Field samples, Chaff, Meal Cake & CBD Hemp Oils), we have recorded results for Delta-9-THC and THC-A below the Limit of Detection (LOD) of less than 0.002%. Our methods of analysis include both Gas Chromatography-FID and High Performance Liquid Chromatography HPLC-PDA, with a prior Solid Phase MicroExtraction (SPME), QuEChERS (Quick Easy Cheap Efficient Rugged & Safe ) pre-treatment process and Post-Column Derivatization steps in all cases for Cold-Pressed Hemp oils. These sample preparation techniques enables the extraction, cleanup and concentration of target analytes prior to their quantification. Solid phase extraction prevents most problems encountered with liquid extraction and improves quantitative recovery yields. This technique is rapid (most extraction in less than 30 minutes), easy to perform and can be automated. In addition, low amount of solvents is handled and this technique is fully adapted for the pre-treatment of complex matrices such as Multi-Complex Hemp Oil Concentrate.

JHG Analytical Services Limited operates in accordance with ISO 17025 Quality Management Program. We are currently pursuing this accreditation for the parameters listed below, specific to Hemp/CBD products and Seaweed/Seaweed Extract products and hope to be awarded this accreditation in the current calendar year. We have recently enrolled in a Proficiency Inter-laboratory Testing Scheme with Emerald Scientific, San Luis Obispo, California USA, an international accredited company specialising in Inter-Laboratory comparisons in the Cannabis and Seaweed industries. We hope that this will help us to expedite the awarding of ISO 17025 Accreditation. I should point out that the entire scope as listed is dedicated to the analysis of Hemp/CBD products and Seaweed/Seaweed Extract products only.



JHG Analytical Services Limited has a very professional relationship with Michael Lynch of Hubotanical Limited and we are certain that the crop they are processing and method of natural extraction is of the highest ethical standards. We look forward to developing a more standardised analytical regime with this company so that the public can be assured that the contents of their products are accurately measured and exactly as detailed on the label.

I am very happy to discuss any issues with achieving accurate results, especially with products that have been tested by the regular extraction/centrifugation/microfiltration standard method, with no subsequent pre-treatment step. I am prepared to discuss, without parting with any proprietary detail, why a Cannabinoid Profile Analysis of a Cold-Pressed product of a highly heterogeneous nature should include a pre-treatment step to achieve the most accurate and efficacious results. No less than the laboratory engaged by the UK Home Office has recently conceded that a pre-treatment step prior to analysis is essential to attain accurate and meaningful results.

**J.W. GOUGH**

**Technical Signatory.**

**JHG Analytical Services Limited.**