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ANALYSIS REPORT REFERENCE: 21-06-21092

**CHEMICAL/BIOCHEMICAL  
ANALYTICAL REPORT**

**Nature of Product: Liquid Seaweed Extract Fertilizer Sample.**

**Date of Report: 27<sup>th</sup>, July 2021.**

**Sample Reference: GroGreen Blomster Godning 100% Organic**

**Sample Ref.: As Dated.**

**E.Marker A/S  
Okslundvej 8  
BOV DK-6330  
Padborg  
Denmark.**

**For the Attention of: Mr. Carsten Marker.**

**Contact No. +46 74670808**

**Email: Carsten@marker.DK.**

**Date of Sample: 21<sup>st</sup>. June 2021.**

GroGreen Blomster Godning

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**Bioactives Profile**

Parameter	LOD	Method Type	Units	Results
<b>Alginic acid</b>	0.002%	HPLC-PDA	% mass.	8.600%
β-D-mannuronic acid				6.800%
α-L-guluronic acid				1.800%
<b>Laminarin</b>	0.002%	HPLC-PDA	% mass.	3.000%
1,3-β-D-glucopyranose				2.235%
1,3-β-D-galactopyranose				0.665%
<b>Fucoidan</b>	0.002%	HPLC-PDA	% mass.	1.480%
Sulphated Fucans				0.880%
Sulphated Mannans				0.600%
<b>Mannitol</b>	0.002%	HPLC-PDA	% mass.	0.916%

**Sugars Analysis**

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Carbohydrate	HPLC-PDA	ISO 11292	% mass	19.450%
Sucrose				13.125%
α-Glucose				0.530%
β-Glucose				-
Fructose				1.512%
Glucopyranose				2.100%
Galactofuranose				0.179%
Raffinose				1.468%
Inositol				0.500%

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## Chemical Compositional

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Potassium as K.	ICP-OES	APHA 3500	% weight	4.675%
Phosphorus as P.	ICP-OES	APHA 3500	% weight	0.224%
Nitrogen as N.	Kjeldahl Distillation	APHA 3500	% weight	2.988%
Organic (Ureic)				2.945%
Inorganic (Anionic)				0.043%
Iron as Fe.	ICP-OES	APHA 3500	% weight	0.390%
Elemental Sulphur S.	Elemental Analyser	In-House Method	% weight	0.668%
pH Value	Electrometric	In-House Method	pH Units	4.89
Organic Matter	Elemental Analyser	In-House Method	% weight	1.400%
Specific Gravity	Densitometry	In-House Method	g/L <sup>-1</sup> .	1.038

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## Trace Minerals Analysis

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Magnesium as Mg.	ICP-OES	APHA 3500	% weight	0.124%
Calcium as Ca.	ICP-OES	APHA 3500	% weight	0.094%
Sodium as Na.	ICP-OES	APHA 3500	% weight	0.075%
Manganese as Mn.	ICP-OES	APHA 3500	% weight	0.045%
Zinc as Zn.	ICP-OES	APHA 3500	% weight	0.077%
Copper as Cu	ICP-OES	APHA 3500	% weight	0.068%
Iodine as I <sub>2</sub>	IC/ICP-OES	APHA 3500	% weight	0.012%
Selenium as Se	ICP-OES	APHA 3500	% weight	0.004%
Chromium as Cr	ICP-OES	APHA 3500	% weight	< 0.0002%
Molybdenum as Mo.	ICP-OES	APHA 3500	% weight	< 0.0001%
Boron as B.	ICP-OES	APHA 3500	% weight	< 0.0002%

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## Amino Acids Profile

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Glutamic acid	LC-MS	JHG-097	mg/100mls.	167
Aspartic acid	LC-MS	JHG-097	mg/100mls.	213
Arginine	LC-MS	JHG-097	mg/100mls.	155
Glycine	LC-MS	JHG-097	mg/100mls.	148
Alanine	LC-MS	JHG-097	mg/100mls.	99
Serine	LC-MS	JHG-097	mg/100mls.	76
Proline	LC-MS	JHG-097	mg/100mls.	55
Leucine	LC-MS	JHG-097	mg/100mls.	111
Tyrosine	LC-MS	JHG-097	mg/100mls.	89
Valine	LC-MS	JHG-097	mg/100mls.	125
Methionine	LC-MS	JHG-097	mg/100mls.	147
Histidine	LC-MS	JHG-097	mg/100mls.	38
Iso-Leucine	LC-MS	JHG-097	mg/100mls.	77
Cystine	LC-MS	JHG-097	mg/100mls.	141
Phenylalanine	LC-MS	JHG-097	mg/100mls.	156
Tryptophan	LC-MS	JHG-097	mg/100mls.	29

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## Plant Hormones Profile

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Betaines Content	HPLC-PDA	JHG-088	% weight	0.004%
Auxins Content	HPLC-PDA	JHG-088	ppm.	7.75
Gibberellins Content	HPLC-PDA	JHG-088	ppm.	6.90
Cytokinins Content	HPLC-PDA	JHG-088	ppm.	5.50
Strigolactones Content	HPLC-PDA	JHG-088	ppm.	< 0.002
Brassinosteroids Content	HPLC-PDA	JHG-088	ppm.	< 0.002

## Heavy Metals Analysis

Heavy Metal	Method of Analysis	Units	Reported Results
Arsenic (Inorganic)	ICP-OES	mg/L. (ppm)	< 0.0002
Arsenosugars (Organic)	ICP/IC-OES	mg/L. (ppm)	0.400
Antimony as Sb.	ICP-OES	mg/L. (ppm)	< 0.002
Cadmium as Cd.	ICP/IC-OES	mg/L. (ppm)	< 0.0005
Mercury as Hg.	Cold Vapour A.A.S.	mg/L. (ppm)	< 0.0005
Lead as Pb.	ICP-OES	mg/L. (ppm)	< 0.002
Chromium as Cr <sup>6+</sup> .	ICP/IC-OES	mg/L. (ppm)	< 0.002
Nickel as Ni.	ICP-OES	mg/L. (ppm)	< 0.002
Silver as Ag.	ICP-OES	mg/L. (ppm)	< 0.002
Vanadium as V.	ICP/IC-OES	mg/L. (ppm)	< 0.002
Tin as Sn.	ICP-OES	mg/L. (ppm)	< 0.002
Aluminium as Al.	ICP/IC-OES	mg/L. (ppm)	< 0.002

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## Herbicide Residues Analysis

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Sulfonyl Ureas/Ureas	UHPLC-MS	APHA 6630	µg/ml.	< 0.004
Imidazolinones/Diphenylethers	UHPLC-MS	APHA 6630	µg/ml.	< 0.005
Phenoxy/Chlorophenoxy	UHPLC-MS	APHA 6630	µg/ml.	< 0.006
Dinitroalinine/Acetamides	UHPLC-MS	APHA 6630	µg/ml.	< 0.002
Bipyridillums/Triketones	UHPLC-MS	APHA 6630	µg/ml.	< 0.004
Thiocarbamates	UHPLC-MS	APHA 6630	µg/ml.	< 0.035
Glyphosate/Glufosinate	UHPLC-MS	APHA 6630	µg/ml.	< 0.002
Atrazine desethyl deisopropyl	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Atrazine deisopropyl	UHPLC-MS	APHA 6630	µg/ml.	< 0.003
Atrazine desethyl	UHPLC-MS	APHA 6630	µg/ml.	< 0.002
Simazine	UHPLC-MS	APHA 6630	µg/ml.	< 0.005
Terbutylazine desethyl	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Atrazine	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Terbutryn	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Terbutylazine	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Alachlor	UHPLC-MS	APHA 6630	µg/ml.	< 0.004
Metolachlor	UHPLC-MS	APHA 6630	µg/ml.	< 0.005
Aminopyralid	LS-MS-MS	APHA 6630	µg/ml.	< 0.001
Clopyralid	LS-MS-MS	APHA 6630	µg/ml.	< 0.001
Triclopyr	LS-MS-MS	APHA 6630	µg/ml.	< 0.002

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## Pesticide Residues Analysis

Parameter	Method of Analysis	Method Reference	Units	Reported Levels
Organochlorine Residues	UHPLC-MS	APHA 6630	µg/ml.	< 0.002
Organophosphorus Residues	UHPLC-MS	APHA 6630	µg/ml.	< 0.002
Organonitrogen Residues	UHPLC-MS	APHA 6630	µg/ml.	< 0.050
Carbamate Pesticides	UHPLC-MS	APHA 6630	µg/ml.	< 0.030
Pyrethroid Residues	UHPLC-MS	APHA 6630	µg/ml.	< 0.001
Organotin Residues	UHPLC-MS	APHA 6630	µg/ml.	< 0.002

All test methods were performed in accordance with the requirements of ISO: IEC 17025.

The test results relate only to the product listed in this report.

**Analytical Assessor****John Gough BSc. MSc.****Assessor Credentials****BSc (Hons) in Analytical Chemistry with Quality Management.****MSc in Environmental Chemistry.****J.W. GOUGH**

\_\_\_\_\_ **Technical Signatory.**

**Dated: 27<sup>th</sup>. July 2021**