

# The Integrated Approach And Effects Of Sea Weeds Bio-Active Substances On Crops

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## Abstract

Environmental threats are now-a-days becoming more important and valuable due to environmental stress on every organism. Similarly the threat the concerned is also faced by the Agriculture commodities. To focus on the said environmental stress on agriculture sector, an experiment was conducted to assess; evaluate and examine the effect of sea weeds bio-active substance on crops for adoption of an integrated approach to address the said problem. For the purpose concerned an integrated approach was adopted for the mechanism; its application techniques and over all effects of certain bio-active substances on the crops. To evaluate; assess and examine the effects of sea weeds bio-active substance, a sample which was soluble sea weeds extracts powder namely Alga-600 and this task used in extracted from brown sea weeds - Sargassum. Through bio

chemistry technology, this was manufactured by a private agro chemical company with the name of Beijing Leili Agro Chemistry Company limited. The vital objective of the research concerned was to evaluate the effect of such sample on crop physiology, anti-stress, anti-virus crop yield and crop quality. To focus on the vital objective of the study was the effectiveness and main effect on enlarging sea weeds application in the fanners<sup>1</sup> field with the sub-vital objective to decrease and minimize the dosage of chemical pesticides and fertilizers for the improvement of Agricultural environment. While, the 2<sup>nci</sup> objective of the study (research) is to save our environment from any degradation practiced by Agriculture commodities throughout the globe

## INTRODUCTION

Every organism has the natural habitat for survival and to keep sustain the survival in a feasible environment is most essential and

very important because the natural habitat of every organism is disturbed, damaged and interrupted time to time particularly by human being. Similarly due to such interruption the human habitat is also disturbed and damaged. While this interruption created a challenging situation for human being on the earth.

Feasible environment where every living thing can survive freely and without any interruption has always been a challenge for man king. So, for the purpose concerned plenty of efforts have been taken by the experts in the field of Agriculture specially to provide the organic produce for the consumers because now-a-days every where the Agriculture commodities are producing non-organic fruits and vegetables. So, to adopt the environment friendly products for the purpose concerned; the Agrarian community always showed efforts to promote such kind of environment friendly and naturally occurred substances or to collect the products from natural resources.

Several researchers are engage to collect or extract the substances from natural source of material which can not only protect the environment from any kind of degradation but also organic in nature. Therefore, the application of sea weeds bio-active substance on Agriculture has a history of more than 30

years due to more concern of environment protection of International community. Sea weeds bio-active substance, for its unique natural active ingredients and remarkable functions, has been attracting attention of International plant nutrition field. In this field China played a leading role being pioneer researcher of sea weed bio-active substance on Agriculture in 1994 (Xhong et al - 1998). They act a vital role in application of sea weeds bio-active relative products on Agriculture.

To examine, evaluate and assess the effects of sea weeds bio-active substances on crops physiology, anti stress, antivirus, yield and quality. Parallel with that also to conduct research on the active effects of enlarging sea weeds application field, decreasing the dosage of pesticides and chemical fertilizers while improving Agriculture environment. Keeping in view; the aforesaid objectives, the research study was conducted to focus mainly on the environmental degradation in the field of Agriculture.

## **MATERIALS & METHODS**

A sample (soluble sea weeds extract powder by the name of Algo-600) extracted from brown sea weed namely Sargassum by bio chemistry technology manufactured by a

private Chinese company was trialed on cotton crop @ three dosage likewise 300g/ha, 600g/ha, and 900g/ha at three stages like; Bud stage, cotton aesthesis stage and Boll formation stage. While using (HPLC) High Performance Liquid Chromatography test for the analysis of the sample i.e. (Alga-600) to elaborate the contents of plant growth regulators in the sample.

## RESULTS & DISCUSSIONS

Data pertaining table 1 shows the Analysis of the product i.e. Alga - 600. as per the data the product is 100% soluble in water organic matter in the product is 55.0 - 65.0% Where as Potassium ( $K_2 O$ ) 18 -20% with the total Nitrogen 0.5 - 1.5% Ca 0.6 - 1.8% Mg 0.42 - 0.60% Fe 0.15 - 0.3% S 1.5 - 2.5% Na 1.5 - 2.2% while Algonac Acid 12 - 15% the results showed that the product is a rich source of organic matter which is pertaining high concentration of Potassium ( $K_2 O$ ). It is most essential product for the overall growth of the plant. Data pertaining table 2 is illustrating that the product is a complete natural extract finally derived from brown sea weeds, which contained several minerals 4 (four) kinds of PGR (Plant Growth Regulators), chelating agents and complex sugars. It is evident from the results that natural nutrients and bio - active substances

can provide multiple benefits to increase yields, improve quality and stimulate vigor significantly for various plants. As it is 100% soluble, this can easily be used and consumed through different application methods. Moreover; that the product Alga - 600 is both non-toxic and environmentally friendly product. Data illustrated in table 3 showed significant results in cotton crop treatment no. 2 and 3 were as per with each other while treatment no. 1 was the maximum as compare to treatment no. 2 & 3. According to the results; different dosage of the produce showed significant results on the cotton crop. Data showing in the table 3 showing that the dosage of 600g/ha is the best at different stage of cotton crop yield of cotton crop and other yield components like bud - number fruiting branch number of those treated by 300g/ha and 900g/ha are much lower than those treated by 600g/ha. It is evident from the results that dosage is not the more then better. But suitable dosage can stimulate the growth of the crop, increase summer boll and yield, while speed-up maturation.

Alga - 600 when applied @ 600g/ha on cotton crop can give maximum and best results like maximum fruiting branch number of 10.3 and maximum yield of 1.980.(Kg/ha)

This is concluded that the application of Alga - 600g/ha can give maximum results and has the best effect on cotton crop.

### CONCLUSION

- Alga - 600 can promote the growth of cotton crop.
- Alga - 600 can improve the yield of cotton crop.
- Alga - 600 can improve the quality of cotton crop.
- Alga - 600 can improve and increase the production value of cotton crop.

### REFERENCES

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**Table 1 - Analysis of the Alga – 600**

Analysis of Alga – 600	(WAV) mg/100ml. mg/100g
Organic Matter	55.0-65.0%
Total Nitrogen	0.5-1.5%
Potassium (K <sub>2</sub> O)	18-20%
Mg.	0.42 - 0.60 %
Ca.	0.6-1.8%
Fe.	0.15-0.3%
S.	1.5-2.5%
Na.	1.5 --2.2%
Algonac acid	12-15%
Water solubility	100%

**Table . 2 - Contents of Plant growth regulators in Alga – 600 (Analysis through HPLC)**

Analysis of Alga – 600	(W/W)
Z(0)	1.90
ZR(2)	3.70
IPA (3)	26.5
GA3 (4)	14.7
IAA (5)	0.83
ABA (6)	0.19
Total:	66.01

(1) Zeatin (2) Zeatosine (3) Indolepropionic Acid

(4) Gibberellic Acid (5) Indoleacetic Acid (6) Abscisic Acid.

**Table. 3 - Effect of Alga - 600 on Cotton Crop**

Treatment	Bud Stage			Cotton Aesthesis Stage			Boll Formation Stage	
	Height (cm)	Fruiting Branch Number	Bud Number	Height (cm)	Fruiting Branch Number	Bud Number	Summer Boll	Yield (kg/ha)
Alga600 300g/ha	47.4	8,2	165	62,4	9.3	3.2	2.3	1818.0
Alga600 600g/ha	46.7	8.8	17.2	63.7	10.3	3.5	2.6	1980.0
Alga600 900g/ha	47.2	8.6	14.2	64,0	9.2	3.4	2.4	1941.0
CK	46,2	7.9	14.3	61.0	8.7	2.7	2.1	1576.5