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Clinical Review

Effect of Aloe-Booster for the Replant Failure of Daily Vegetables on Dried Fields in Circulation Type-Agriculture Case Report 1-2

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Abstract

Effective application of Aloe-booster for the replant failure of daily vegetable plants on dried fields in circulation type-agriculture was positively obtained. Aloe-booster resulted in one of the bio-stimulants for fungal disease in daily vegetables.

Keywords: *Aloe-Booster; One of Bio-Stimulants; Replant Failure; Daily Vegetables Application; Dried Fields Cultivation; Case Reports*

Introduction

A bio-stimulant is an agrochemical product formulated with mixtures of natural substances and/or microorganisms which, when applied to plants, can improve the efficacy of mineral nutrition, tolerance to abiotic stress (salinity, drought, high temperature, heavy metals, etc.), and biotic and/ or crop yield, or enhances that act as bio-stimulants have been defined. Aloe vera has a wide range of medicinal and therapeutic effects as the leaves of the plant contain effective compounds that have different biologically properties and the endophytic fungi in the leaves of Aloe vera have a role in the therapeutic and medicinal effects of the plant through its production of biologically effective compounds that have many therapeutic and medicinal effectives [1]. Antagonistic activities with endophytic fungi isolated from Aloe vera leaves against some plant pathogenic fungus were as follows: *Rhizoctonia solani* with an inhibition rate of 78.57%, *Talaromyces verruculosus* and *Penicillium chermesinum* showed their highest antagonistic activities against pathogenesis fungus *Fusarium* 1 with inhibition rates of 61.79% and 61.53%, respectively, while *T. verruculosus* showed an inhibition rate of 61.91% against the pathogenetic fungus *Fusarium* 2. Antagonistic activity against pathogenic Fungi was conducted by using GC-MS. The results showed the presence of biological effects, such as pentadecanoic acid, oleic acid, limonene, cis-vaccenic acid, hexane-diol acid, bis (C2-ethyl, C6-hexyl) ester [2]. The inhibitory effect by *Trichoderma* spp. of Aloe vera endophytic bacterial extracts for *Fusarium oxysporum* under greenhouse and field condition was reported and *Trichoderma* spp.: *T. asperellum* and *T. harzianum* reduced *Fusarium oxysporum* 30% and 40%, respectively [3].

Some endophytic bacteria of Aloe vera roots have potential for use as plant growth promoters, such as indole acetic acid (IAA) and solubilization of Ca $(PO_4)_2$, total 24.8% of the isolated symbiotic bacteria at Aloe vera synthesized IAA [4]. In an earlier report we presented the efficacy of Aloe-booster containing ALM green [5] for the replant failure in dried fields to *Rubia akane*, *Persicaria tinctoria*,

and *Allium cepa* on dried fields in circulation type-agriculture: case report 1-3 [6]. Cultivation of three following vegetable plants in replant failure of dried fields with spraying the diluted Aloe-booster two times in a week controlling with the non-treated was examined. Present investigation of Aloe-booster for fungal disease for *Cucumis sativa*, Cucurbitaceae, in case report 1, *Capsicum annum* in case report Solanaceae in case report 2. Case report 1 and 2 were investigated in dried fields.

Case report 1: After 10 days of the planting of 5 *Cucumis sativa* in the dried agricultural fields on May, one of them was suffered with fungal disease. And the diluted Aloe-booster was sprayed two-times with non-controlling of Aloe-booster to the dried replant failure fields. Then, the *C. sativa* spread its roots and had fresh green leaves. Cucumis sativa showed green-fresh leaves without fungal diseases and harvested *C. sativa* safely.

Case report 2: After 10 days planting *Capsicum annum* in the dried agricultural replant failure field on July, the diluted Aloe-booster was sprayed two-times a week with non-controlling of Aloe-booster to the dried replant failure fields. Green *C. annum* without Fungal diseases was harvested in Autumn.

Conclusion

Vegetable plants susceptible to powdery mildew such as Cucurbitaceae and Leguminosae in the dried replant failure fields were examined with the spraying diluted Aloe-booster. And the fresh green leaves were safely obtained without any fungal diseases and harvested in each plant without powdery mildew. Aloe-booster containing ALM green was positively shown as one of the bio-stimulants in the replant failure and susceptible to fungal disease in dried cultivation fields.

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