

Cytokinins For Alleviating Yellowing And Stunting of Cucurbits.

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Cucurbits production has been greatly curtailed in U.A.E. Since 1985 due to infection with a new yellowing and stunting disorder which is believed to be caused by a virus related to lettuce infection yellows virus (Hassan and Duffus, 1990). The most prominent symptoms are stunted growth and interveinal bright chlorosis of the older leaves. Damage is particularly severe to melon (Cucumis Melo L.) and watermelon (Citrullus lanatus (Thunb) Mansf .) crops. It is known that some yellow viruses, especially the luteoviruses multiply mainly in the roots. It is also well established that root tips are the sites for cytokinin are believed to delay senescence (Richmond and Lang, 1957; Leopold and Kawase, 1964). Carmi (1986) found that exogenous application of cytokinins to leaves increased their growth rate, whereas root pruning which lead to cytokinin deficiency had the opposite effect.

It was assumed that the virus-induced symptoms (Yellowing and stunting) are regulated through virus interference with cytokinin production in the roots. Therefore, this experiment was conducted to study the effect of cytokinin application to melon foliage

for alleviating symptoms of the yellowing and stunting disorder .

The experiment was carried out at the Agricultural Research and Education Center of the Faculty of Agricultural Sciences U.A.E. University in Al-Oha, Al-Ain (Latitude 24 15 Longitude 55 45) during the fall growing seasons of 1988 and 1989. Seeds of melons cv. Tania were sown in a completely randomized block design with three replications on hills spaced 45 cm apart with 140 cm between rows. Each experimental unit consisted of 20 m rows. Triggrr (Westbridge, CA.) , a cytokinin-like product, was sprayed on leaves three weeks after seed emergence and every 2 weeks thereafter for three more times.

Triggrr application was at the rate of 0.0, 4.5 or 9 g / 3.8l of water. Sprays were made in the early morning. Irrigation and cultivation practices were carried out as commonly exercised in the district. Fertilizers were added in three applications at the rate 50-50-5- Kg/hectar as N, P₂O₅ and K₂O, respectively, with trace elements applied as complex fertilizers.

The experimental field was left unprotected to permit maximum natural infection with the disease. Initially, it was planned to classify individual plants according to symptoms severity at intervals. However, symptoms development was very severe on all plants in both years of the study regardless of Triggrr treatment. Hence , Triggrr had no beneficial effect and did not alleviate symptoms of the

yellowing and stunting disorder.

Additional research is needed to determine the best cytokinin method of application. Mothes and Engelbrecht (1961) found that the effect of applied cytokinins was localized and that only those areas to which the chemical was applied remained green. Also, Mothes and Engelbrecht (1961) concluded from their studies that cytokinins caused mobilization of metabolites from the untreated to treated portion of leaves.

Key Words : Cytokinins, Triggrr, Cucurbits, Yellowing and Stunting.

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هرمون السايٲوكينين للحد من اصفرار وتدهور القرعيات

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ملخص

يتأثر انتاج القرعيات في دولة الامارات بدرجة كبيرة منذ عام ١٩٨٥ بالاصابة بالاصفرار والتقزم والذي يعتقد انه ناتج عن الاصابة بفيروس اصفرار الخس المعدى . ويعتقد ان السيتوكينين يلعب دورا في النمو والحد من الاصفرار . واجرئت تجربة بمزرعة كلية العلوم الزراعية بالعين في فصل الخريف عامي ٨٨/٨٩ حيث زرعت بذور البطيخ والشمام صنف "Tonia" وصممت التجربة على نظام القطع العشوائية بثلاث مكررات . رشت مادة Triggrr والشبيهة بالسيتوكينين على الاوراق عند الانبات وثلاث مرات أخرى بتركيز صفر ، ٤,٥ ، ٩ جرامات لكل ٢,٨١ جرام ماء . تركت التجربة بدون غطاء لضمان الاصابة الطبيعية بالمرض اظهرت النتائج عدم جدوى السيتوكينين في الحد من الاصفرار والتقزم .

كلمات مفتاحية : هرمون السيتوكينين - Triggrr - القرعيات - الاصفرار والتقزم .