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Observations on Citrus Autumn Leaf Drop in the Libyan Jamahiriya

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ABSTRACT

Citrus autumn leaf drop causes severe damage to the sweet orange trees whether they are old or new lines. This condition usually appears during the period from October to January. The first symptom appears as mesophyll collapse particularly on those leaves that developed during the summer (spring flush) and at the tops of the trees. Affected leaves will roll upward, wilt, and drop leaving the petiole for sometime attached to the twig. The petioles soon drop and severe die back of the twigs may take place. This die back seriously affects the blooming of the following season. Natural incidence of this disorder was observed. Some trees of new lines of sweet orange varieties started to show symptoms of this condition within four years from propagation regardless of the rootstock.

INTRODUCTION

The disorder of autumn loaf drop is one of the most important problems that affect citrus varieties in the Libyan Jamahiriya. It was first observed in 1969 (1). It appears on lemon, but old or new lines of the sweet orange, *Citrus sinensis* (Linn.) Osbeck, trees are severely affected. The susceptible varieties are mainly Navel, Valencia, Demmi, Sukkary, Tarocco, and Sanguine. This paper summarizes some of the findings obtained during the study of the autumn leaf drop disorder of citrus in this country.

Symptomatology

Citrus autumn leaf drop disorder has been a subject of studies for the past four years. Orchards were selected at different locations in Tripoli, Al-Judayedah, and Tajura. Seedlings as well as full-grown trees in the field from different varieties of sweet orange were kept under observation. The first visible symptom of the disorder appeared as mesophyll collapse in some areas of the lamina of the leaves (Fig. 1), particularly those developed during the summer (spring flush). The cleared leaf tissues, caused by the mesaphyll collapse, soon wilt causing upward rolling of the leaves. These affected leaves dry out and drop leaving the petioles for sometime attached to the twig (Fig. 2). Defoliation is most evident on the current or last flush of growth and at the tops of trees (Fig. 3). Dry winds intensifies defoliation or may result in a drying the young tender leaves on the trees. Defoliated twigs, especially of oranges may die before

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Fig. 1. Early symptoms of citrus autumn leaf drop disorder on the foliage of sweet orange, usually appear as mesophyll collapse. Note light areas where mesophyll cells have been destroyed in the lamina of the leaves (this can be seen only when leaves are held up against the light).

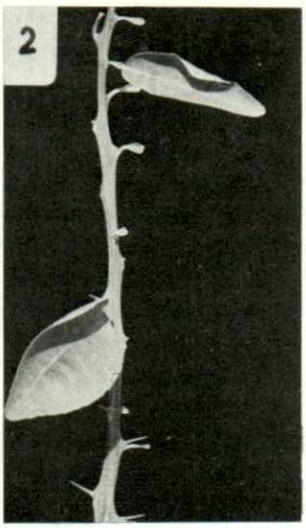

Fig. 2. Twig from which leaves have dropped. Note that the leaf petioles remained with the twig.

acquiring new foliage. This die back might extend to the older branches, resulting in severe pruning of the infected trees which in turn will seriously affect the blooming of the following season.

It was noted that symptoms of this disorder appear mainly during October, November, December, and January. All important commercial cultivars of sweet orange, *Citrus sinensis* (Linn.) Osbeck., e.g. Naval, Valencia, Demmi, Sukkary, Tarocco, and Sanguine are susceptible regardless of the type of the rootstock. Natural incidence of this disorder was noticed. Some trees of new lines of the previously mentioned sweet orange

Fig. 3. An orange tree affected with autumn leaf drop disorder. Note defoliated and bare twigs, especially at top of the tree. Injury was primarily on summer growth (spring flush).

varieties started to show symptoms of the disorder within four years from planting in the field.

Causal agent

Autumn leaf drop was first reported from Egypt by F. Nour-Eldin (unpublished report, 1957). It was found that Baladi (local), Valencia, and Navel sweet orange trees grafted on more than 20 different rootstocks have suffered from this disorder.

The causal agent of autumn leaf drop has not been identified yet. No pathogenic fungi or bacteria have been isolated from the affected leaves or twigs (1). Presence or absence of viruses or mycoplasmalike organisms were not investigated. Besides, examination of many leaves of injured plants, seedlings or trees, revealed the presence of different stages of a spider mite mainly on the upper surface of the leaf and usually on the sunny side of the tree. This phytophagous mite has been under investigation by Hessein *et al.* (unpublished, 1977).

Therefore, more studies are needed to establish the identity of the causal agent of citrus autumn leaf drop.

LITERATURE CITED

1. Nour-Eldin, F. and A. E.-S. A. Fudl-Allah. 1976. Citrus virus and viruslike diseases in Libya. Libyan J. Agr. 5:101–110.

تساقط أوراق الحمضيات الخريفى فى الجماهيرية العربية الليبية الشعبية الاشتراكية

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المستخلـــص

تتسبب هذه الظاهرة فى سقوط نسبة عالية من أوراق أشجار الحمضيـــات وخاصة أنواع البرتقال الحلو باعمارها المختلفة ٠ تظهر هذه الحالة عادة فى الفترة من اكتوبر الى يناير ، وأول اعراض هذه الظاهرة هو اختفاء الكلورفيل من بعض اجـــزاء أنسجة الاوراق حيث تصبح شفافة ومنفذة للضوء ٠ وعادة تظهر هذه الاعراض عـــلى الاوراق الحديث والتى تكونت فى أثناء فصل الصيف وخاصة فى قمة الاشجار ٠ ويتقدم المرض تبدأ الاوراق المصابة فى الالتفاف جهة السطح العلوى للورقة ثم تذبل وأخيرا تسقط تاركة الاعناق متصلة بالافرع لفترة قصيرة ثم تسقط بعدها ، وعادة يصحب ذلك جفاف وموت الافرع الصغيرة مما يتسبب عنه فقد كبير فى الازهار والحمل للعام القادم ٠