Frond malformation disease of date palms in Libya

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ABSTRACT

A number of date palm trees in the districts of Al-Jofra and Ain-Zara showed frond malformations. These malformations consisted of the leaves being wavy and the leaflets and spines having a zigzag appearance. It was noticed in some cases that the leaflets were profusely stacked on both sides of the wavy fronds and the spines were twisted.

Date palm (*Phoenix dactylifera* L.) is considered one of the important fruit trees in Libya. There are about 4,600,000 planted date palm trees of which about 3,100,000 are productive. The total production is estimated to be 90,000 tons with an average of 15.3 - 30 Kg/tree (2, 3).

No records of virus or mycoplasma-like disease symptoms were reported on date palm in Libya (1, 3). However, records of a mycoplasma like organism causing the lethal yellowing disease in other parts of the world are documented (4, 5, 8).

Surveyed date palm fields at Al-Jofra in 1984 showed many off-shoots and mature trees having various abnormal virus like or mycoplasma like disease symptoms. These include fronds showing distorted and shortened leatlets and midribs (Fig. 1, 2). Other fronds had needle like leaflets and flattened midribs.

Mechanical inoculation by leaf extracts obtained from the diseased leaves failed to produce any symptoms on the following plants: *Phoenix dactylifera* L. seedlings, *Capsicum annuum* L., *Chenopodium amaranticolor* Coste and Reyn., *Nicotiana clevelandii* Gray., *N. debneyi* Domin., *N. glutinosa* L., *N. rustica* L., *N. sulvestris* Spreg. & Comes, *N. tabacum* L., cvs 'White Burley' and Xanthi-nc, *Physalis floridana* Rydb., and *Vicia faba* L.

Although the symptoms described have not been reported from Libya, similar descriptions of a disease termed «bastard» disease were reported from Iraq on the fronds of date palm off-shoots (7), and also were found in Saudi Arabia on the fronds of the off-shoots from apparently healthy date palm trees and from trees affected with Al-Wijam disease (6).

Hussain (1974) stated that the bastard disease could be due to reduction in growth or infestaction by the date palm bud mite (*Makiella phoenicis* K) (7). We believe that frond malformations in Libya could be due to physiological or genetic factors which cause abnormal differentiation of the somatic cells. Frond malformation was also observed in newly emerging off-shoots, and this is believed to be a normal phenomenon due to leaf compaction.

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Fig. 1 — *Malformed frond showing twisted midrib and leaflets.*

Fig. 2 — *Malformed frond showing one side of the madrib carrying normal leaflets, and the other side carryng twisted leftlets.*

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مرض تشوه أوراق النخيل فى ليبيا

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المستخلص

لوحظت أعراض تشوه أوراق النخيل فى منطقة الجفرة، ومنطقة عين زارة بليبيا وأعراض التشوه هذه تتمثل فى أن العرق الوسطى للورقة (الجريدة) يكون متموجا كما أن الوريقات والأشواك (السل) تكون متعرجة.

وفى حالات أخرى لوحظ أن الوريقات تكون متراصة على جانبى الجريدة المتموجة والأشواك ملتوية. وفى بعض الأوراق تبدو الوريقات طبيعية فى نموها على أحد جانبى الجريدة ومتموجة على الجانب الآخر، وفى حالات أخرى لوحظ أن الجريد يحمل وريقات أبرية الشكل أشبه ما تكون بالأشواك. وقد تعذر نقل مسبب المرض بالعدوى الميكانيكية الى بادرات نخيل وبعض الأنواع من النباتات العشبية.