SUMMARY

AND CONCLUSION

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Taxonomical Studies in Genus Citrus

These Studies were carried out during the period from 2005-2007on *Citrus* trees in the Farm of Faculty of Agriculture , Moshtohor , Benha University .The Citrus tree under study were belongs to three genera ,***Citrus, Fortunelle and Poncirus.*** The studies were divided into two parts: Isolation and Identification of volatile oils and Isolation and Identification of DNA.

Isolation and Identification of volatile oils:

The obtained results revealed that, the components of volatile oils differed between the three Citrus genera and between Citrus species and varieties under study as follows:

The difference between three genera were:

1-The volatile oils components of Genus ***Fortunella*** were characterized alone by the presence of **Isoledene, Germacrene D, Elemol** and **β-Eudesinel**.

2-The volatile oils components of Genus ***Citrus*** were characterized alone by the presence of **Nonae** in **sour orange**, **Linalool oxide** in **sweet orange**, **Carine** and **β Terpneol** in **sweet lime, Neral** in **sweet lime** and **Cleopatra mandarin** ,and **2,3 Dimethyl** in **Santara** and **Satsuma mandarin**.

3-The obtained results revealed that the components of volatile oils in Genus ***Poncirus*** were common with Genus ***Citrus.***

The differences between Citrus species and varieties were:

1-Volatile oil component of **Sweet orange** leaves were characterized alone by the presence of **Linalooloxide** component.

2- Volatile oil component of **Sour orange** leaves were characterized alone by the presence of **Nonane** component.

3- Volatile oil component of **Sweet Lime** leaves were characterized alone by the presence of **Carine** and **β-Terpineol** components.

4- Volatile oil component of **Sweet Lime** and **Cleopatra mandarin** leaves were characterized alone by the presence of **Neral** component.

5- Volatile oil component of **Santara Mandarin** and **Satsuma mandarin** leaves were characterized alone by the presence of **α-3 Dimethyl** component.

6- Volatile oil component of **Rough Lemon, Lemon** and **Citron (*Citrus medica* var. Kabbad)** leaves were characterized alone by the presence of **Nerolidol** component.

7- Volatile oil component of **Rough Lemon, Lemon** and **Trifoliata Orange** leaves were characterized alone by the presence of **Cineol** component.

8- Volatile oil component of **Gaffa Orange, Blood Orange** and **Cleopatra Mandarin** leaves were characterized alone by the presence of **Geranial** component.

9- Volatile oil component of **Gaffa Orange, Blood Orange, Santara Mandarin** and **Satsuma Mandarin** leaves were characterized alone by the presence of **Cis 2 penta 1 al** component.

10- Volatile oil component of **Gaffa Orange, Blood Orange** and **Balady Mandarin** leaves were characterized alone by the presence of **Trans Ocimene** component.

11- Volatile oil component of **Gaffa Orange, Succary Orange, Blood Orange** and **Balady Mandarin** leaves were characterized alone by the presence of **Octanol** component.

12- Volatile oil component of **Gaffa Orange, Succary Orange, Sour Orange** and **Balady Mandarin** leaves were characterized alone by the presence of **Sabnene** component.

13- Volatile oil component of **Sour Orange, Santara Mandarin, Lemon** and **Sweet Lemon** leaves were characterized alone by the presence of **Camphene** component.

Isolation and Identification of DNA:

The results revealed also the presence of **10 positive** and **2 negative** molecular markers for **genotypic identification**. The dendrogram for the genetic distances were of the ISSR technique revealed that the **highest similarity** was between **the Balady mandarin and trifoliata orange genotypes**. **The lowest similarity** index recorded was observed between **Kabbad and Kumquat** genotypes. The dendrogram resulting from the ISSR technique separated the ten Citrus genotypes into two clusters; **cluster 1** included both of **Balady lime and Kumquat**, **cluster 2** included; **two subclusters**; the **first subcluster** included **Naffash** and **Kabbad** with **Shaddock alone** and **sour orange with grapefruit**. **The second subcluster** include **Balady mandarin with trifoliata orange** and **Jaffa orange alone**.