# MOLECULAR MARKERS ASSOCIATED WITH DROUGHT TOLERANCE IN *CITRULLUS COLOCYNTHIS*

By

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B.Sc. Agric. Sc. (Genetics), Ain Shams University, ٢٠٠٠

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**Faculty of Agriculture**

**Ain Shams University**

٢٠١٠

**Approval Sheet**

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## ABSTRACT

**Ahmed Hassan Mohammed, molecular markers associated with drought tolerance in *Citrullus colocynthis*. Unpublished ph.D Thesis, Genetics Department, Faculty of Agriculture, Ain Shams University, 2010.**

The present study represents some Mean performance of chemical compositions and vegetative measurements in *Citrullus colocynthis*. Chemical compositions were measured for some components (% Mean total Alkaloids, Mean total Proline Conc. µg/ml (ppm) and Mean total pigments), for four different sites at Red sea coast (Elba Mountain), New valley area, North Sinai, and Katreen. Some vegetative Measurements were measured also in *Citrullus colocynthis* for some characters (Mean leaf area cm2, Mean leaves number, Mean branches number, Mean stem diameter cm, Mean shoot length cm and Mean roots length cm). On the other hand molecular markers associated with drought tolerance were studied using thirteen preselected random primers (RAPD) and fourteen preselected (ISSR) primers exhibited polymorphism obtained from the DNAs of sixteen samples of C. colocynthis (C1-C4) from the four different sites at Elba Mountain, New valley, North Sinai, and Katreen areas.

The study also aimed to detection and sequencing of some drought tolerance genes in *Citrullus colocynthis* using the genomic DNA based on the four plants analysis, each plant from Elba Mountain, New valley, North Sinai, and Katreen areas. The specific primers of those drought tolerant genes were (Dehydrin gene), (UB gene), (P5CS gene), (PEPKS gene) and (ACT gene), which were succeed to detect some drought tolerant genes among the four locations of *Citrullus colocynthis*.



**Key words:** *Citrullus colocynthis*, chemical compositions, vegetative Measurements, RAPDs, ISSRs, molecular markers and drought tolerant genes.

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