PHYSIOLOGICAL STUDIES ON FLOWERING OF SOME MANGO CULTIVARS

BY

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B.Sc. Agric., Horticulture, Ain Shams Univ., 1994

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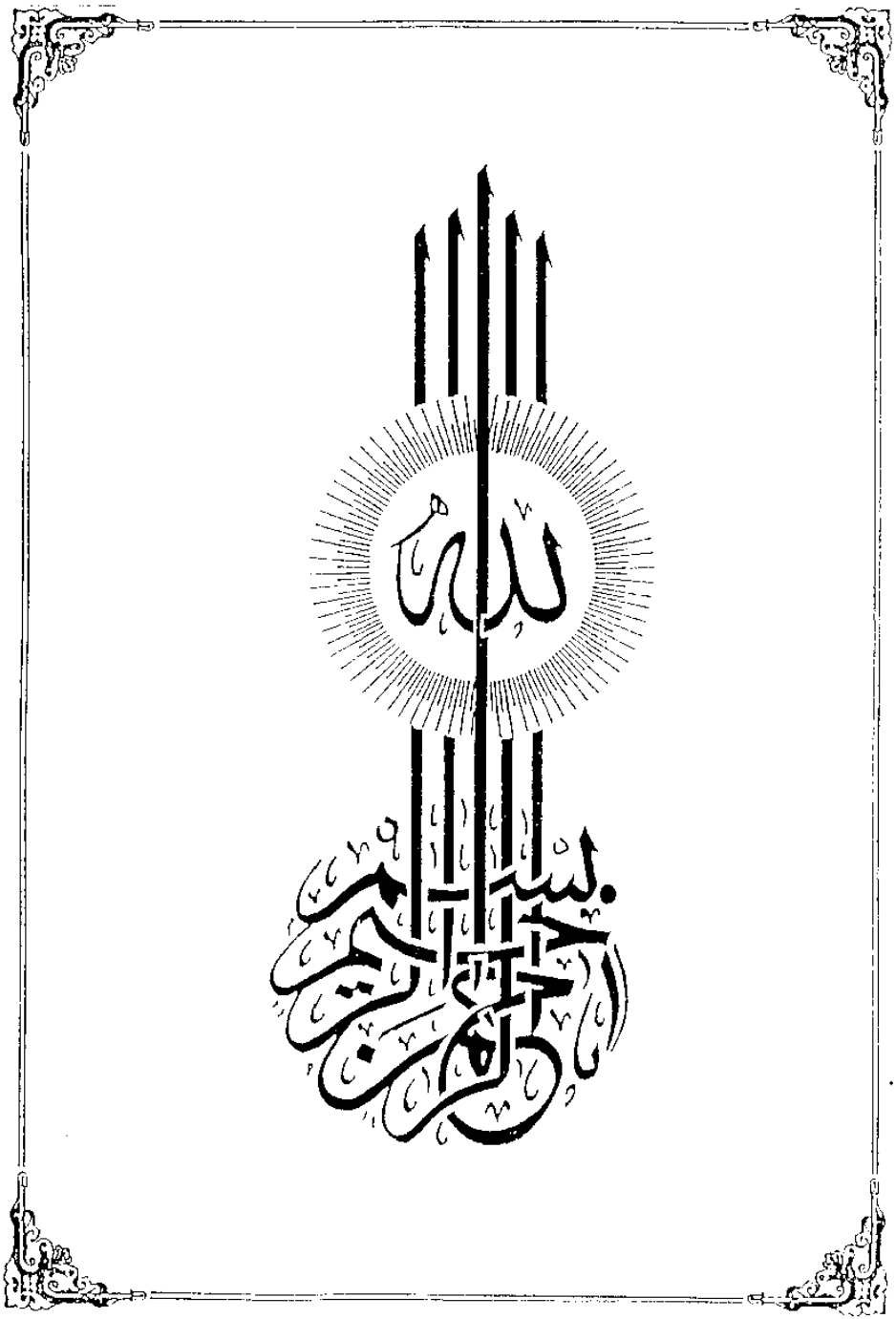

APPROVAL SHEET

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ABSTRACT

Maha Mohamed Galabi Afifi. Physiological Studies on flowering of some mango cultivars. Unpublished Master of Science, Ain Shams University, Faculty of Agriculture, Horticulture Department, 1999.

This study was carried out during (1996-1997) and (1997-1998) seasons on "Fajri kalan" and "Langra" mango trees of about (13-25 years) respectively, in order to determine the approximate time of floral bud initiation, it's different stages and the relationship between these stages and some leaves mineral content. In addition, sex ratio; pollen grains viability; sexual compatibility; fruit set and fruit drop for both cvs. under investigation were also studied.

Results indicated that, there was no difference between the two studied cultivars in their beginning time of flower bud initiation during either "on" or "off" year season, whereas it commenced two weeks later for trees in the "off" year than those of the "on" year in both cultivars. Moreover, initiation and differentiation of floral buds of both cultivars are gradually spread over a certain period, commenced in Nov. 15th or Dec. 1st, according to the bearing habit of the tree until February 1st.

Seven distinct successive stages were detected in the course of floral bud initiation, development and differentiation. The arise of some meristematic protuberances from the axil of some proximal scales presented the first evidence of flower bud initiation.

Leaves content of total nitrogen increased gradually from Oct. 15th to Jan. 1st, then a gradual decrease was noticed reaching its minimal level towards Mar. 1st before bloom. On the other hand, both phosphorus and potassium leaves content exhibited the same trend either in the "on" or "off" year, whereas, they accumulated prior to and during the period of floral bud initiation, development and differentiation. Two peaks of both nutrients were obtained for both cvs. followed by a sharp or / a gradual decrease. So, most of mineral

nutrients which were accumulated in leaves exhausted at the different stages of floral bud initiation, development and differentiation.

Inflorescences of "Langra" cv. showed lower sex ratio than those of "Fajri kalan" ones this may be attributed to the fact that , the perfect flowers percentage in "Langra" cv. inflorescence was significantly higher than those of "Fajri kalan" ones. Moreover, the percentage of viable pollen grains was quite high in both "Langra" and "Fajri kalan" cvs. in both seasons.

Microscopic examination revealed that both "Langra" and "Fajri kalan" cvs. are self incompatible cultivars. In addition, different abnormal perfect flowers had been showed in both cultivars whereas about 80% of the pistils were deformed and defectives.

The retained fruits in different developed fruit were gradually decreased in either pea, marble and mature stages. Moreover, "Langra" cv. showed higher average number of mature fruits per panicle than those of "Fajri kalan" one.

Finally, there was no significant difference in total fruit drop percentage between both cultivars in both seasons.

Key words : Mango , Langra cv., Fajri kalan cv., floral bud initiation, sex ratio, pollen grains viability, self compatibility , fruit set , fruit drop.

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