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Studies on the flower bud differentiation and development of Almond

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ABSTRACT-RESUME

Flower bud differentiation and development of one early, one mid season and one late flowering almond clones has been studied. A significant difference in the time of differentiation and of pollen formation between early and late flowering clones has been found.

La différenciation et le développement de boutons floraux ont été observés respectivement sur une variété précoce, de moyenne saison et tardive.
Des différences significatives dans les dates de la différenciation et de la formation du pollen ont été mises en évidence.

INTRODUCTION

The knowledge of flower bud differentiation and development is important for the application of many cultural practices in the orchards. It may also be important for some breeding programmes. For example breeding for late flowering is extremely important for any breeding programme of the almond.

Vasilev and Baev (1967) reported that the development of pollen of late-flowering almond cultivars occurred much later than that of the early-flowering ones. They emphasise the importance of this correlation in breeding works. Yablonskii (1972) reported that in almonds, peaches and apricots the development of flower buds is much slower in cultivars in which the flower have resistance to cold.

Mostolovitsa (1973) found that in plums the cultivars which develop pollen mother cells earlier, are subject to cold damage much more than ones where the pollen mother cells develop much later.

The aim of this work is to investigate the flower bud differentiation and development in early and late flowering almond types.

MATERIALS AND METHODS

This work has been conducted in the experimental plot of the Department of Pomology and Viticulture at Bornova. One early flowering (2-1), one mid season (120-1) and one late flowering (101-13) clone have been used. For the examination of flower bud differentiation, buds were collected with 10 day intervals

starting from the beginning of July up to January. The same methods with Kaska (1961) have been used in fixation, preservation and examination of the buds. Kaska (1961) and Gülcan (1975) described 17 distinct stages in the differentiation and development of flower buds in apricots; the same definitions have been used in our experiment. For example stage zero indicates no differentiation where stage I shows the first evidence of the differentiation (Fig. 1-I). Stages II-VII indicate the development of the sepals, petals and stamens. In stage VIII pistils start to develop where in stage X development of anthers and pistils are advenced.

RESULTS AND DISCUSSIONS

In the first week of May, shoot growth ceased and the formation of terminal buds started in clones 120-1

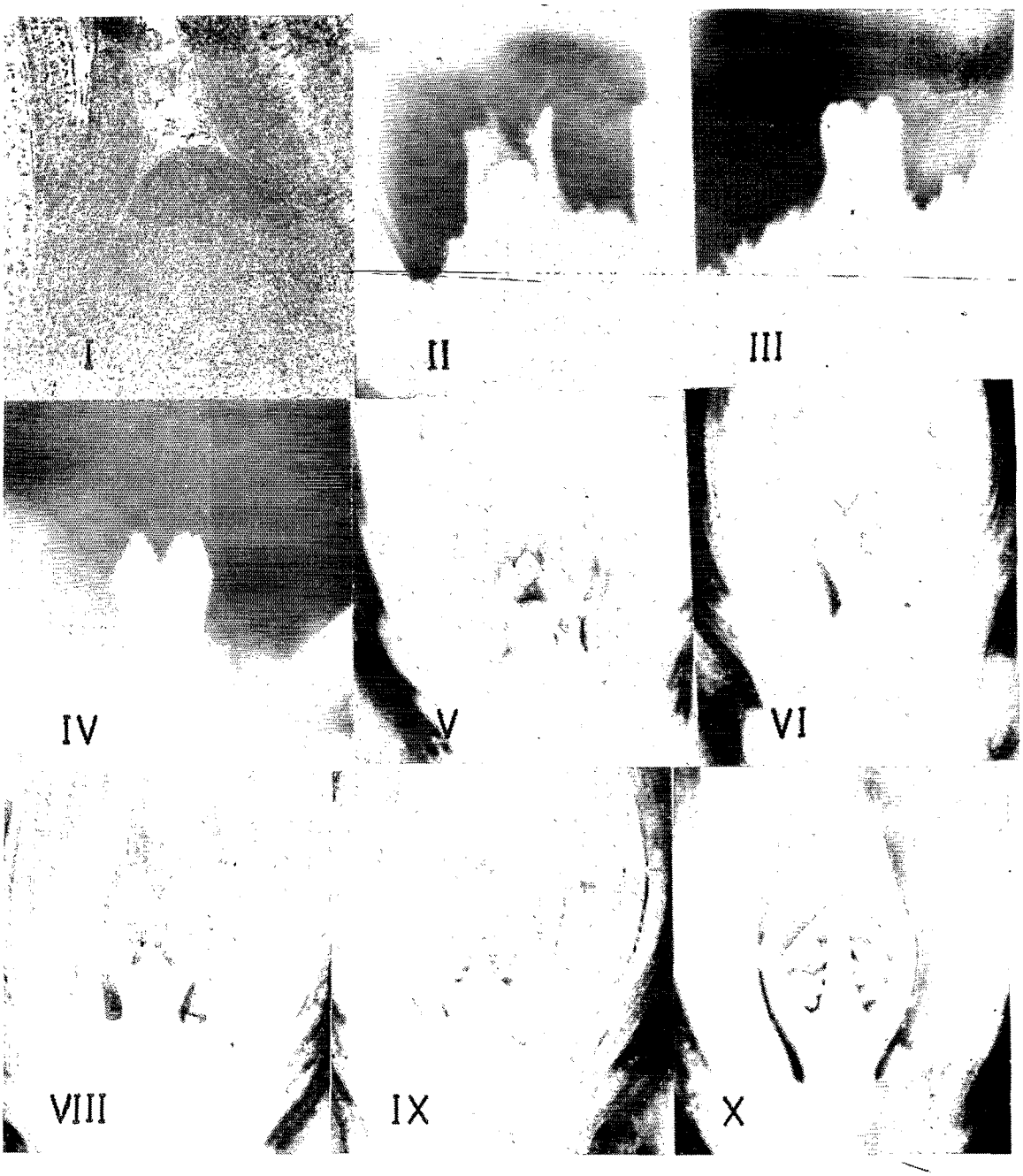

Fig. 1. Differentiation and stages in the development of the flower buds of the almond up to the formation of the pollen mother cells.

and 2-1 while shoot growth was stil continuing in 101-13 which is a late flowering one. Glone 101-13 reached the same stage 3 weeks later. A period of two months has been observed between the beginning of the terminal bud pollens much, earlier than 101-13 in both years.

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