

## **PHENOTYPIC ANALYSIS TOWARDS THE IDENTIFICATION OF QTLS ASSOCIATED TO FRUIT QUALITY FEATURES IN PEAR**

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Pears are one of the most cultivated and grown fruit in temperate zones and are highly appreciated by consumers for their unique taste and flavor. Pear is a climacteric type of fruit, with ethylene playing a pivotal role in the control of ripening, triggering and coordinating several physiological changes leading to the final quality as well as affecting its storability. The desired pear flavor and texture commonly develops as the fruit ripen mainly due to the action of ethylene. Despite of their climacteric nature, pears can be however divided into summer and winter types, depending on the capacity of the fruit to produce ethylene immediately after harvest. Summer pears producing ethylene after harvest are able to ripen without the need of external stimuli, winter pears, instead, need distinct periods of cold storage to trigger the ethylene autocatalytic burst and thereby enabling fruit ripen to commence. The deciphering of the ability of pear fruit to produce ethylene with or without chilling requirements may be of paramount importance to obtain fruit with an optimal quality as well as to design the best postharvest handling strategies. In the framework of this project, we investigated the ethylene production capacity in a set of pear genotypes with a dynamic approach, assessing the production of the hormone in duplicate (3 fruit per rep and 2 reps per each of the 100 individuals evaluated), from the time of the harvest up to 21 days of storage at 20°. The initial analysis of the data indicated that the fruit ethylene production capacity was not strictly associated to the fruit maturity at harvest and showed a favorable segregation of the production of this hormone among the targeted individuals. The results from this study will be further exploited in a QTL-mapping survey addressed to identify the QTL

regions associated to this trait and to design markers suitable to assist the selection of novel and improved accession of pears.