

**Title** Phenolic contents and postharvest quality changes of Norwegian 'Mallard' plums (*Prunus domestica* L.) as a consequence of delayed time to low temperature storage

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#### **Abstract**

During the picking season in the Norwegian plum production areas, the harvested plums are brought to cold storage in packing houses once or twice a day. Plums picked late in the afternoon may even not be cooled properly until the next day. The average time from picking until the plums are placed in a cold storage is approximately 8 hours. Previous reports have shown that delayed cooling of sweet cherries and apples reduced the fruits' susceptibility to physiological or fungal decay. An experiment was performed in order to evaluate the impact of different delay-to-cold storage times (0, 5, 10, 15 and 25 hours) on quality and phenolic contents changes of Norwegian 'Mallard' plums during cold storage, transport, and retail in normal atmosphere (NA). The fruits (10 fruits in PE tray, n=3) were stored for 14 days at 1°C, followed by 3 days at 7°C and then for 4 days at 20°C. Fruit quality parameters (firmness, colour in CIE *L*, *a*\*, *b*\* colour space, weight, rot occurrence (%)) and total phenol and anthocyanin content were determined. Samples were analyzed just before cold storage and then after 14 days at 1°C, 3 days at 7°C, or 4 days at 20°C. Evaluation of results has shown that delay of cooling has a retarding effect on rot development during 20°C storage (post cold transport), weight loss and stimulates anthocyanin accumulation and colour changes to some extent. At the end of storage no effect on fruit firmness could be observed.