

Title Influence of maturity stage at harvest on essential oil composition of dill leaves (*Anethum graveolens* L.) And of postharvest treatments on freshness of fresh-cut dill

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Abstract

Dill (*Anethum graveolens* L.) is a minor crop of interest for its aromatic properties. It is used both as seasoning and in vegetable salads. Essential oils (EO) are synthesised by plant secondary metabolism according to the growing stage. We studied the effect of maturity (1st harvest time: pre-blossoming phase; 2nd harvest time: end of blossoming phase) on essential oil composition at harvest and the influence of processing (cut; whole leaves) and storage temperature (4°C; 12°C) on fresh weight loss. An experiment was performed on dill grown in an open field during summer 2008. At harvest, production parameters were measured and the essential oil profile analyzed. Harvested dill was packaged immediately or cut and packaged in 50-g trays wrapped with polypropylene film and stored for 5 days. Fresh weight loss was measured daily during shelf-life. Maturity stage significantly influenced fresh leaf mass (P=0.049) and dry matter content (P=0.004) at harvest with the former greater at the 1st harvest, while the latter was greater at the 2nd harvest. Essential oil compounds were not influenced by maturity, except for myristicin (P=0.022), the maximum value (0.12% of EO) of which occurred at the 1st harvest. After a 5-day shelf-life, fresh weight loss was significantly influenced by the interaction between maturity stage and storage temperature (P=0.047) with minimum loss (0.24%) occurring in dill from the 2nd harvest stored at 4°C. Harvesting leaves at the pre-blossoming phase was the optimal compromise between production and essential oil quality. Lower storage temperature was confirmed to be suitable for a better quality preservation during shelf-life.