Title Use of thyme and sweet basil essential oils to the increase of storage life of table grape cv. Tabarze

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Abstract

Stem browning due to water loss and post-harvest decay caused by *Botrytis cinerea* are two main factors which reduce grape post-harvest quality. The common measure for the control of fungal rot has been the use of synthetic fungicides such as sulphur dioxide (SO_2), but the necessary concentration may induce injuries to rachis and berry. In addition, sulphite residue is important consumer problem. Therefore, there is a need to find new products that are nontoxic to human health and not harmful to the environment. The effectiveness of thyme (*Thymus vulgaris* L.) and sweet basil (*Ocimium basilicum* L.) essential oils the control of post-harvest fungal disease and the shelf life of table grape were evaluated. The harvested fruits of table grape Tabarze were sprayed with essential oils of thyme and sweet basil at concentration of 0 (control), 200, 400 and 600 µl/l and stored in a cold storage (1°C) for 2 months. The results showed that essential oil treatment had significant inhibitory effects on fungal growth and stem browning. Effects of essential oils were type and dose-dependent, since fungal growth and stem browning were reduced as the essential oil concentrations increased. In addition, thyme oil was more effective than sweet basil oil in reduction of disease severity and stem browning. Weight loss percentage of clusters treated with sweet basil oil was lower than the clusters treated with thyme oil. The results of this work have shown that thyme and sweet basil oils have promising antifungal activities which may be used for preservation and/or extension of the shelf-life of agricultural crops, since these essential oils Generally Recognized as Safe (GRAS) products.