# Parsley essential oil under drought stress

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Biotic factors can affect content and chemical composition of plant essential oil. The effects differ according to environment, duration and intensity of stress. Drought alters physiological and biochemical processes, and in turns interferes with essential oil biosynthesis (1). This research aims to evaluate drought stress effect on parsley essential oil production. Plants were grown in 5.5 L pots under protected environment. Treatments were composed by 20, 40, 60, 80 and 100% of pot water retention capability. At 10 days before harvest the treatments were applied. To monitor water percentage it was used tensiometer. It was used randomized block design with six repetitions and the experimental unit was composed by one pot with three plants. At 99 days after sowing plants were harvested and submitted to drying (40℃). It was used 2 g of plant material for essential oil extraction. The extraction was carried out in a Clevenger apparatus (hydrodistillation) for 2 h after the beginning of condensation. For essential oil collection 5 mL of hexane was added to collector tube. The volume of collected organic phase was weight and the difference computed as essential oil yield. Essential oil chemical composition was evaluated by gas chromatography (DB-5 column, 30 m and 0.25 mm inner diameter, 0.25 µL and analytical conditions: injection temperature 220ºC, starting temperature 50ºC, hold time 5ºC, temperature variation 4ºC, final temperature 240ºC, pressure 67,4 KPa, column flux 1.2 mL/min, linear velocity 39.7 cm/sec). It was injected 1 µL of sample. For identification of compounds it was used equipment library. It was not observed effect of drought stress for a period of 10 days before harvest on essential oil content and chemical composition. The average content was 0.67% ($T_{20\%}$ 0,75%; $T_{40\%}$ 0,80%; $T_{60\%}$ 0,6%; $T_{80\%}$ 0,48%; $T_{100\%}$ 0,70%). The following compounds were observed α-pinene (11.21 to 25.07%), β-mircene (4.76 to 6.98%), β-phellandrene (7.16 to 22.76%), carotol (6.49 to 21.50%), menthatriene (12.35 to 33.52%) and apiole (42.42 to 69.94%).

1. Kleinwächter, M.; Selmar, D. Agron. Sustainable Dev., 2015, **35**, 121-131.

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