**Title** Energy consumption and colour characteristics of nettle leaves during microwave, vacuum and convective drying

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**Abstract**

Nettle leaves (*Urtica dioica* L.) were dried from an initial moisture content of 4·41 to 0·1 (dry basis) by involving microwave, convective and vacuum drying, respectively. Energy consumption and colour parameters for the nettle leaves were compared at these different drying conditions. In particular, the experiments were carried out at four different microwave power levels (500, 650, 750 and 850 W) and air temperatures (50, 75, 100 and 125 °C) to investigate the effect of these factors on the microwave and convective drying, respectively. Instead, under vacuum drying conditions both the influence of vacuum (20 and 50 mm [Hg]) and drying temperature (50 and 75 °C) were considered. Drying periods ranged from 4 to 6, 30 to 120 and 35 to 65 min for microwave, convective and vacuum drying, respectively. The semi-empirical Page's equation was able to reproduce the experimental drying curves at all operating conditions under microwave, convective and vacuum drying. The optimum method with respect to the drying period, colour and energy consumption was the microwave drying at 850 W.