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Effect of different drying methods on the sensory quality and chemical components of black tea

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1 **Effect of different drying methods on the sensory quality and chemical components of black**
2 **tea**

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7 **Abstract:** This study investigated the effects of conventional hot-air drying, microwave
8 drying, far-infrared drying, halogen lamp drying and halogen lamp-microwave combination
9 drying on sensory and chemical quality of black tea. Sensory evaluation revealed that the black tea
10 dried with halogen lamp-microwave and microwave got more uniform black color, fresher taste
11 and higher sweet aroma. Total quality score was in the order: halogen lamp-microwave dried tea
12 (89.3) > microwave dried tea (88.2) > halogen lamp dried tea (86.4) > far-infrared dried tea
13 (85.2) > hot-air dried tea (83.1). The highest contents of polyphenols, catechins and theaflavins
14 were found when black tea dried with microwave. Far-infrared drying and hot-air drying could
15 remarkably increase the contents of amino acids and soluble sugars. The volatiles of black tea
16 were identified with gas chromatography-mass spectrometry. Microwave dried black tea got the
17 maximum contents of volatile compounds, followed by halogen lamp-microwave dried tea,
18 far-infrared dried tea, halogen lamp dried tea and hot-air dried tea. Overall, microwave drying and
19 halogen lamp-microwave drying could ameliorate the drying process of black tea.

20 **Key words:** microwave; far-infrared; polyphenol; volatile compounds; amino-acid

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