

A STUDY OF VIRGIN OLIVE OIL QUALITY FROM QOM REGION

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INTRODUCTION

Olive oil quality is associated with fatty acid composition, especially oleic acid content. Peroxide value and pigment content of oils are also of importance in determining quality. Well-balanced composition of fatty acids in olive oil results in high stability against thermo-oxidation and consequently has the great benefit for human health and diet.

This study is aimed at comparing olive oil quality in five cultivars grown in arid region of Qom (two Iranian cultivars, i.e. Mari and Shengeh, and three imported ones, i.e. Arbequina, Beledy, and Koroneiki) through measuring peroxide value, fatty acid composition, and chlorophyll and carotenoid content to determine the cultivar/s with high quality oil.

MATERIALS AND METHODS

Olive fruits were handpicked at the same stage of maturity in autumn 2012. The fruits were crushed, the paste was malaxed at 30°C, and then centrifuged at 4000 rpm for 20 minutes. The extracted oils were collected and kept in dark glass jars in refrigerator.

Peroxide values were measured according to the modified method of Garcia et al. Chlorophyll and carotenoid concentrations were measured by Minguez-Masquera method. Fatty acid composition of the oils was analyzed by Gas Chromatography.

RESULTS AND DISCUSSION

Significant differences were observed in oleic acid content among the analyzed cultivars. Oleic acid had the highest mean value in oils from Mari and Koroneiki with 75.6 and 74.85%, respectively, while Beledy showed the lowest mean value of 54.6%.

Peroxide values were all under the threshold value of 20 (meq O₂/kg) for extra virgin olive oil established by EEC regulations. Among these cultivars, Beledy had the highest PV (7.73), while Shengeh had the lowest (6.4).

Chlorophyll and carotenoid content ranged from 1.98 to 3.2 mg/kg and from 1.44 to 2.44 mg/kg oil, respectively. Beledy contained the highest amount of chlorophyll and carotenoid pigments (3.2 mg/kg and 2.44 mg/kg oil, respectively). Shengeh had the lowest amount of pigments.

Mari and Koroneiki are inferred to produce the highest oil quality given their high oleic acid content. The data presented indicate that Beledy is the one cultivar with the lowest oil quality having the lowest oleic acid content, and the highest PV and pigments content, with the latter interfering with oxidation of the oil.

Keywords: fatty acid content, peroxide value, pigment contents, olive oil

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