CYPRUS UNIVERSITY OF TECHNOLOGY

FACULTY OF GEOTECHNICAL SCIENCES AND ENVIRONMENTAL MANAGEMENT

Master Thesis

CHROMATOGRAPHIC DETERMINATION OF OLEUROPEIN AND HYDROXYTYROSOL IN THE OLIVE DRUPE

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Lemesos 2013

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DEPARTMENT OF AGRICULTURAL SCIENCES, BIOTECHNOLOGY AND FOOD SCIENCE

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by

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Thesis submitted to faculty as part of the requirements for obtaining the Master Degree of the Postgraduate Program Food Biotechnology from the Department of Agricultural Sciences, Biotechnology and Food Science.

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Lemesos 2013

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Abstract

Aim of this thesis was the ratification of a high performance liquid chromatography method to study the effects of the cultivar, of environmental conditions and ripening stage of the olive drupe, to the concentration of oleuropein and hydroxytyrosol.

This research paper is divided into three sections, the theoretical, the experimental, and the results section. The first section lists data on the chemical composition, growth, maturation and harvest of the olive drupe. Furthermore this section provides information on the phenolic compounds in general and specifically to the chemistry, structure and pharmaceutical properties of both oleuropein and hydroxytyrosol based on the literature. Finally there is an epigrammatic reference to the principles of high performance liquid chromatography and the chromatographic study of oleuropein and hydroxytyrosol .

The experimental section describes the experimental procedure followed for chromatographic determination of oleuropein and hydroxytyrosol contained in the olive drupe.

Finally the results are divided into two parts: the results of the ratification of the method and the results of the chromatographic assay. The results of the ratification for the present study, indicate that the chromatographic method used to determine oleuropein and hydroxytyrosol in olive drupes, is suitable for the purpose for which it was developed, with a very good linear co-relation between the concentration and the response of the detector throughout the studied concentration range ($r > 0,99\%$). The results of the chromatographic assay showed that the concentration of both oleuropein and hydroxytyrosol vary depending on cultivar, environmental conditions and stage of maturation of the olive drupe.