

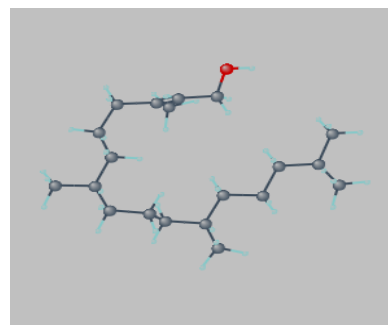
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Determination of phytol content in some vegetables and fruits

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INTRODUCTION

Phytol is an acyclic diterpene alcohol which is formed by enzymatic degradation of chlorophyll in plants. Phytol is widely used in the synthesis of vitamin E and K, in the fragrance industry in the food industry in the cosmetics etc. The use of phytol in the human body is essential in activating enzymes that have a positive effect on the production of insulin and enzymes that decrease blood cholesterol. The aim of this study was to investigate phytol content in fresh fruit and vegetables grown up in the Republic of Macedonia

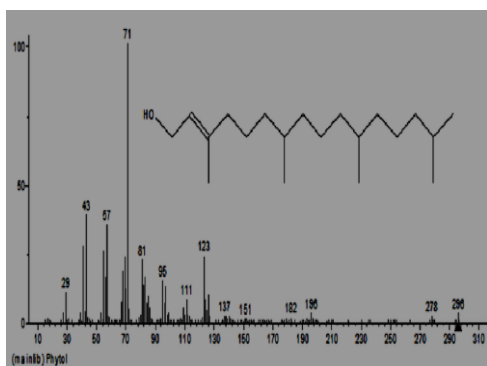


MATERIAL

A total of 170 samples of different fresh vegetables: tomato, cucumber, paprika, potato, beans, carrot, beetroot, leek, eggplant, zucchini and okra; fruits: apples, grapes, plums, peaches, watermelon and melon. Fruit and vegetables were produced in the Republic of Macedonia during 2016. They were brought to the laboratory for Food Control in the Institute of Public Health by responsible Food inspectors.

EXPERIMENTAL

Extraction of the samples were performed with acetone followed by re-extraction with petroleum ether (40 – 60) and purification on cartridges packed with polymerically bonded ethylenediamine-N-propyl phase (PSA). Identification and determination of phytol was performed with gas chromatography - tandem mass spectrometry (GC-MS). Identification was performed in TIC mode and quantification in SIM mode.



RESULTS

The results of our study showed that content of phytol in the extract of analyzed fruit samples were in the range from < than 0.01% (w/w) for plums to 3.5% (w/w) for grapes. Vegetables with low content of phytol were: eggplant, tomato, potato, carrot, and beans. Cucumber was crop with the highest content of phytol with average value of 26.9% (w/w). The extracts obtained from leek contained 7.2% (w/w) phytol and from okra contained 3.8% (w/w) phytol.

CONCLUSION

The results of our investigations showed that vegetables with higher content of chlorophyll as cucumber and leek contain phytol in higher concentrations.