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Seed oil sterols contribution as an origin marker of cultivated plums

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Introduction

Plant sterols and stanols are *phytosterols*—essential components of plant membranes—that resemble the chemical structure of animal cholesterol and carry out similar cellular functions in plants. *Sterols* are present naturally in small quantities in many fruits, vegetables, nuts, seeds, cereals, legumes, vegetable oils, and other plant sources. In many cases, some seed oils are used as nutraceuticals and as nutri-cosmetics. Thus the origin of these oils is very important because the origin is identical to the product quality and is fact that its value determinate by the origin area. This study investigated the sterols profile of oil from plums seeds. As experimental material was used the seeds from a very well known variety of plums. The determinations of sterols analysis showed variances and differentiation giving a promising methodology for the identification of plum seed oil origin.

Introduction (continue)

Fruit seeds are usually thrown out as waste during processing or after human consumption.

Over the years, researchers have dedicated their effort to assess the food and nutritional values of many different fruit seeds.

For several fruit seeds, the macronutrient components such as oil, protein, and carbohydrate of are found to vary due to either varietal differences or geographical variations.

While the high oil-bearing fruit seeds are potential new sources of oil, those with high protein content can be used for recovery of protein.

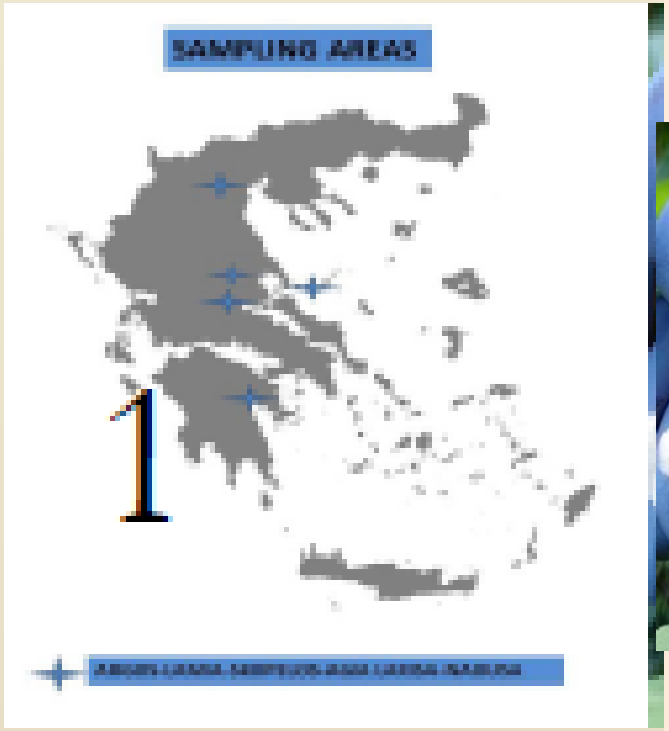
As some of the fruit seeds are edible and found to possess a host of phytonutrients, they can be harnessed for medicinal and cosmetic purposes.

Nowdays , consumer’s growing interest in improving their dietary nutrition is driving the development of novel seed oils having unique fatty acid profiles and other beneficial components, including phytosterols and natural antioxidants.

Material and methods

Plant material-sampling

Selected trees were labeled from five cultivated areas by Stanley variety of plums by criteria of healthy appearance and uniform size and age. Fifty (50)fresh fruits per plant were randomly by hand collected on the same day, on August 2016, when they visually were in full maturation. The seeds were removed with the aid of an expeller and after washing they were dried in air at room temperature until their weight was constant. Dried seeds were milled to a fine powder and oil was exhaustively extracted with petroleum ether in a Soxhlet apparatus. The solvent was evaporated under low pressure in a rotary esvaporator (40°C bath), and then a stream of nitrogen was passed through to eliminate the petroleum ether resituated.



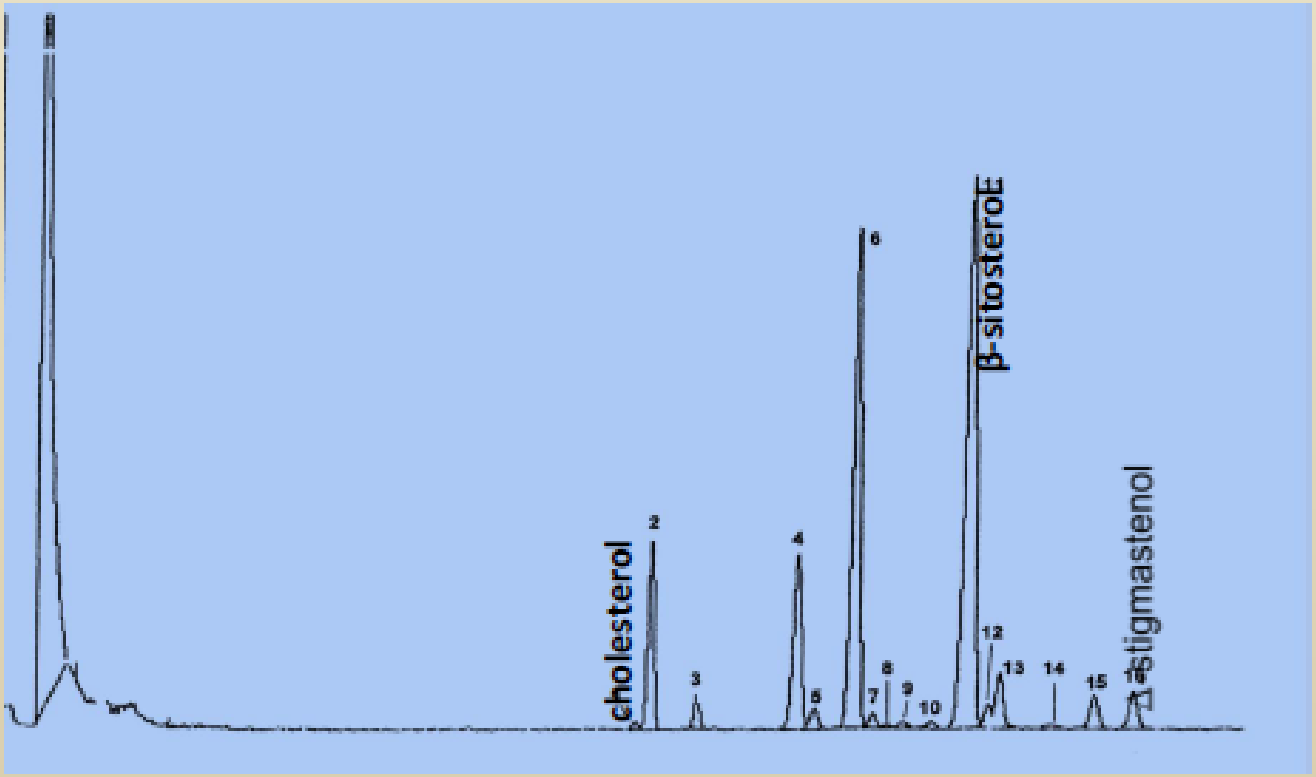
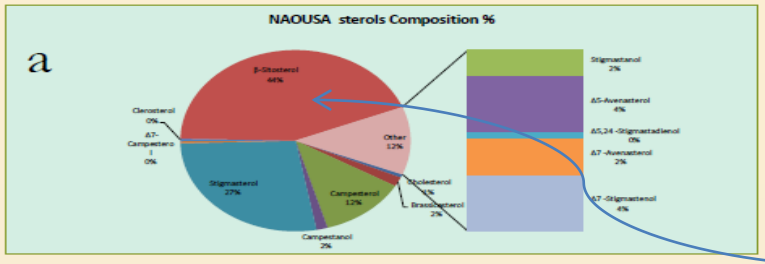
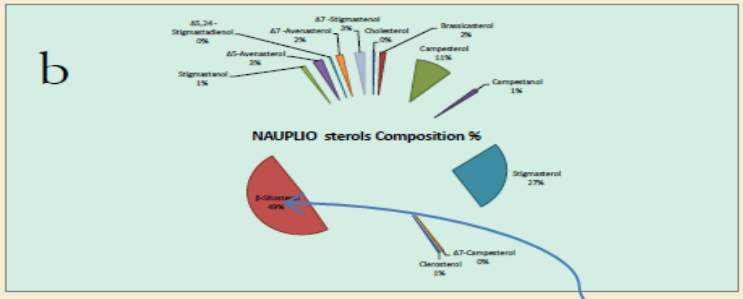
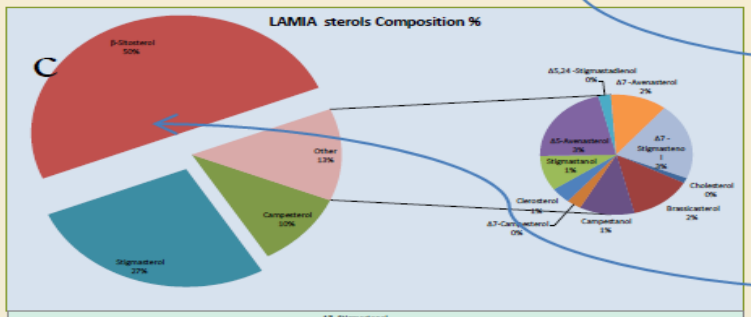
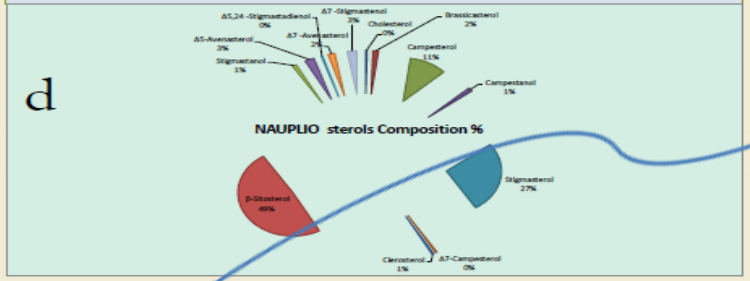


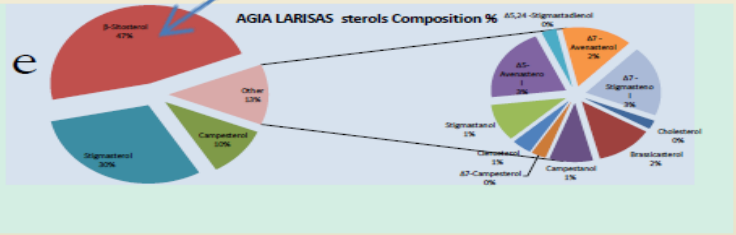
FIGURE 4: A typical gas chromatogram of examined plums seeds sterol profile.











β-Sitosterol the dominated of the sterols
by fluctuated percentage % due to Origin area of fruits(seeds)

Discussion and Conclusions

This study investigated the sterols profile of oil from plums seeds. As experimental material was used the seeds from a very well known variety of plums. Significant amounts of β-sitosterol were determinated. As it is known β-sitosterol plays a serious role of our immune system. Thus the oil of plum seeds is a good resource for nutraceutical uses. The determinations of sterols analysis showed variances and differences from area to area giving a promising methodology for the identification of plum seed oil origin.

3rd PLUM & PRUNE WORKING GROUP MEETING in SKOPELOS

I’m waiting for all of you in Greece for Plum Vacations

THANK YOU FOR YOUR ATTENTION

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