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Mapping the chemical variability of vegetable lecithins

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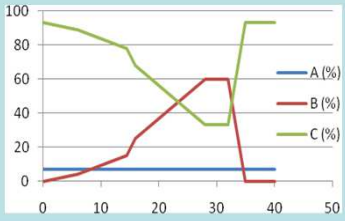
Abstract

There is an increasing interest in vegetable lecithins because of its broad usage in many food and cosmetic applications. In this research, the chemical variability of commercial lecithins from soy bean, sunflower and rapeseed was mapped. The acetone insoluble matter, total phospholipid content and its composition were determined. Principal component analysis was used to group the lecithins according to their sources. Rapeseed lecithin was found to be the most different product compared to soy bean and sunflower lecithin.

Method

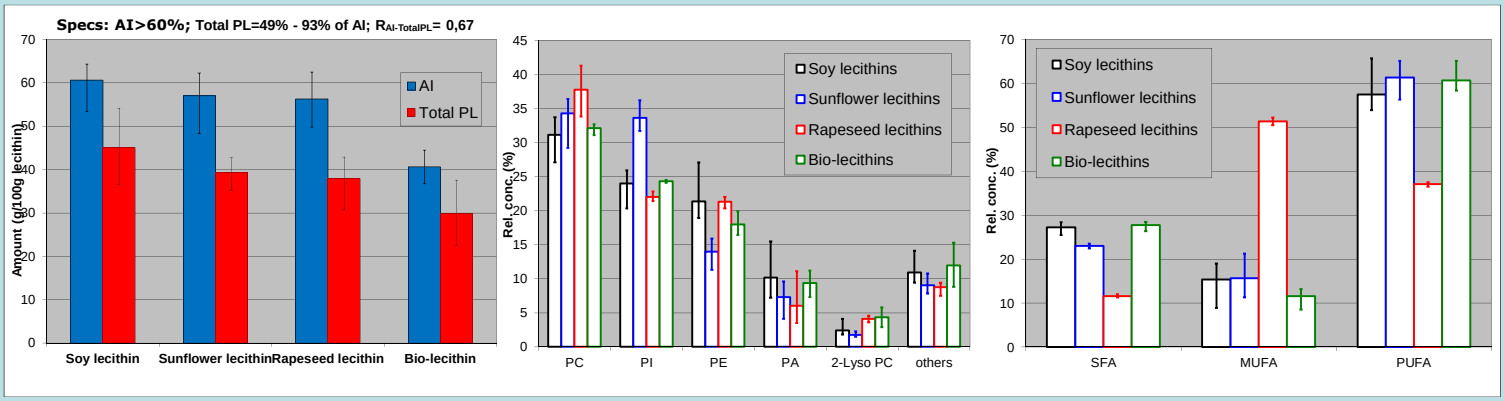
- **Acetone insoluble value AI%: Percentage amount of matter in lecithin that is not soluble in Acetone.**
- **Phospholipids composition: HPLC-ELSD, YMC-Pack Diol Silica column, 250x4.6mm i.d, 5mm, 120Å .**
- **Fatty acid profile: GC**
- **Principle component analysis**

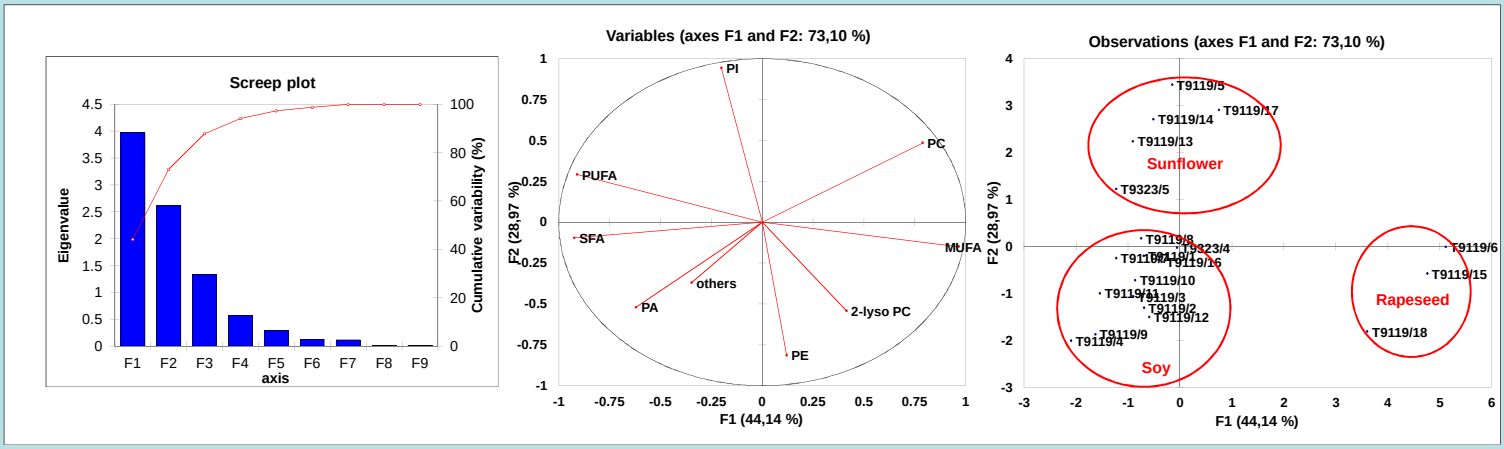
HPLC gradient profile



Solvent A: n-hexane
Solvent B: methanol–acetic acid –TEA (970-15-18, v/v/v)
Solvent C: acetone–acetic acid–TEA (970-15-18, v/v/v)

Results





Conclusion

Significant negative correlation coefficients were observed between phosphatidylcholine and phosphatidic acid (-0.84), phosphatidylethanolamine and phosphatidylinositol (-0.86). Negative correlation was also noted between monounsaturated fatty acid and polyunsaturated fatty acid (-0.97), and saturated fatty acid (-0.92). In terms of acetone insoluble matter of vegetable lecithins, rapeseed lecithins are the most different product from sunflower and soybean lecithins.

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