Eco-extraction of aniseed oil: Use of green solvent as alternative solvent to n-hexane

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Aims of the work: *Pimpinella anisum* L. (anise) seeds have been widely used as a culinary ingredient as well as traditional remedies for the treatment of different disorders in the folk medicine systems of different civilizations. Its essential oil show many properties and is already well studied and used. The lipid fraction of the seeds has also already been investigated. Petroselinic acid was the most prevalent fatty acid in anis oil seeds. This one also presents several properties. Nowadays, fixed oils are extracted with the help of petrosolvents. This raise issues regarding environment and security, but also public health. Regulations are more and more strict and alternative more and more searched. In general, those ones consist in the use of substitution solvents. Thus, the purpose of this work was designed to evaluate the performances of a green solvent compared to n-hexane in aniseed oil extraction.

Methods: Conventional methods have consisted in a warm extraction by soxhlet method with hexane and a cold extraction by Folch method. The performed alternative method was assessed by Soxhlet method with a green solvent. The extracted oils were quantitatively and qualitatively analyzed to compare the solvents' performances in terms of lipid yields, fatty acid composition and antioxidant activity.

Results: The results indicated that oil obtained with agro-solvent presents high yield, antioxidant potential and richer in fatty acids than the oil obtained by the two other conventional methods.

Conclusion: The promising results allowed to conclude that green solvent could be an alternative to n-hexane extraction with higher lipid yield and good selectivity.

Keywords: aniseeds, oils, yields, fatty acid, green extraction