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Sage Essential Oils: Chemical Characterization and Evaluation of the Antioxidant Activity of Commercial Samples

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INTRODUCTION & AIM

The essential oil of *Salvia officinalis* (Sage), an aromatic plant belonging to the Lamiaceae family, is very useful in the pharmaceutical, food and cosmetic industries due to its anti-inflammatory, antioxidant and antimicrobial effects.

The present work aims to optimize the extraction of essential oil from commercial samples using an experimental design with two independent variables, the solid/liquid ratio (w/v) and time, followed by an evaluation of the response variables, yield and antioxidant activity. A chemical characterization of the oils was also carried out.

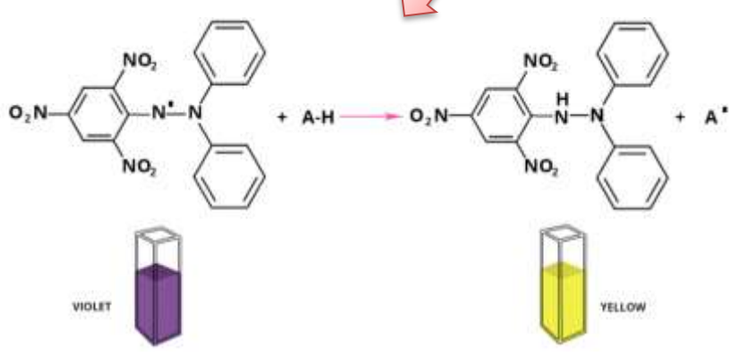
METHOD

Crushed *Salvia officinalis*

Hydrodistillation in *Clevenger* apparatus

Identification and quantification of the compounds by GC/MS

Essential oil



Antioxidant activity by DPPH• assay

RESULTS & DISCUSSION

Table 1: Experimental design to obtain *Salvia officinalis* essential oil by hydrodistillation and yield and antioxidant activity values.

Independent variables			Results	
Trial	Solid/liquid ratio (w/v)	Time (min)	Yield (%)	Antioxidant activity (%)
1	01:20	60	0.06	16.34
2	01:20	300	0.38	13.39
3	01:50	60	0.17	8.71
4	01:50	300	0.29	24.49
5	01:14	180	0.17	28.34
6	01:56	180	0.22	22.47
7	01:35	10	0.15	9.75
8	01:35	350	0.30	24.07
9	01:35	180	0.29	24.09
10	01:35	180	0.37	22.57
11	01:35	180	0.34	21.60

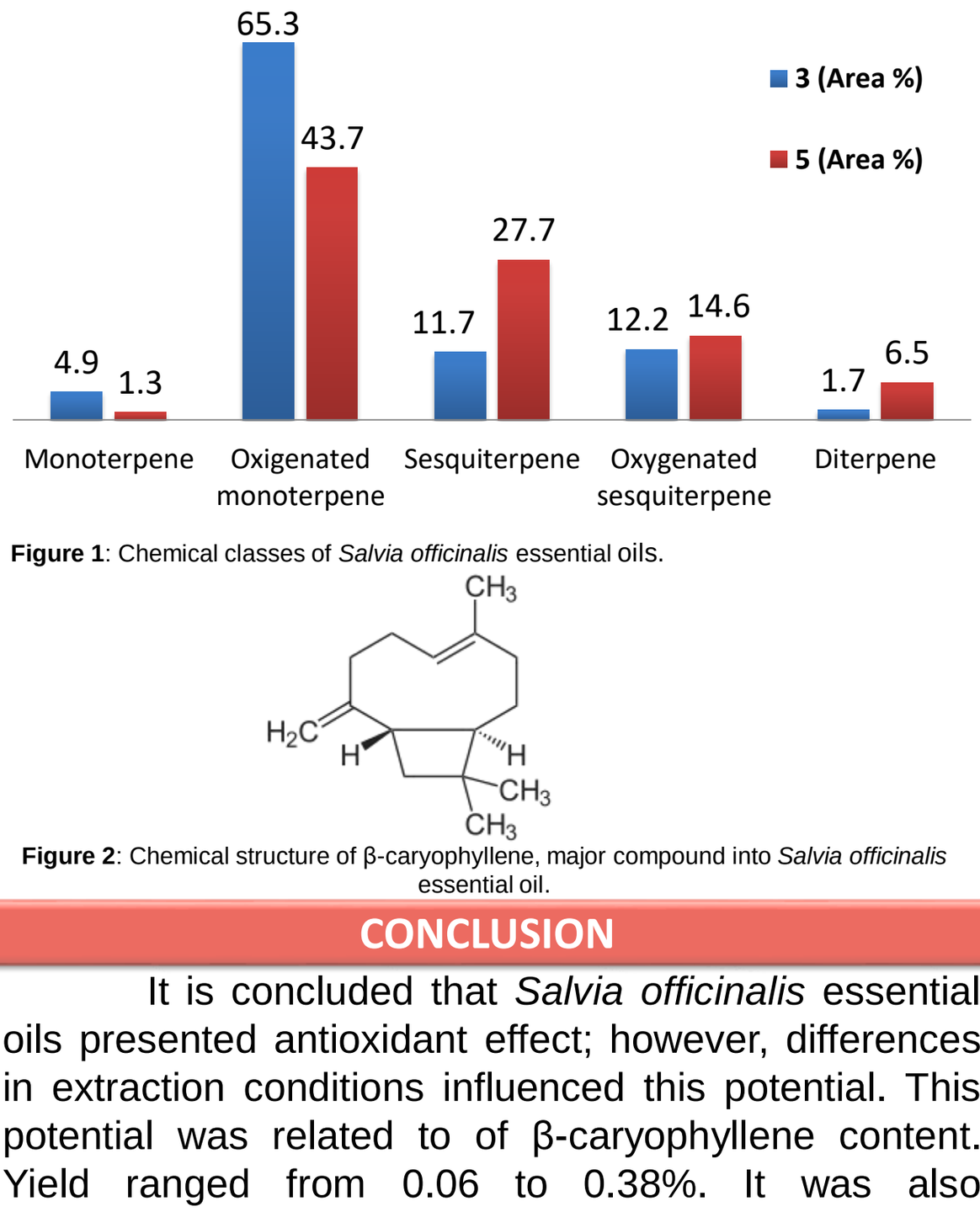


Figure 1: Chemical classes of *Salvia officinalis* essential oils.

Figure 2: Chemical structure of β-caryophyllene, major compound into *Salvia officinalis* essential oil.

CONCLUSION

It is concluded that *Salvia officinalis* essential oils presented antioxidant effect; however, differences in extraction conditions influenced this potential. This potential was related to of β-caryophyllene content. Yield ranged from 0.06 to 0.38%. It was also influenced by extraction condition.