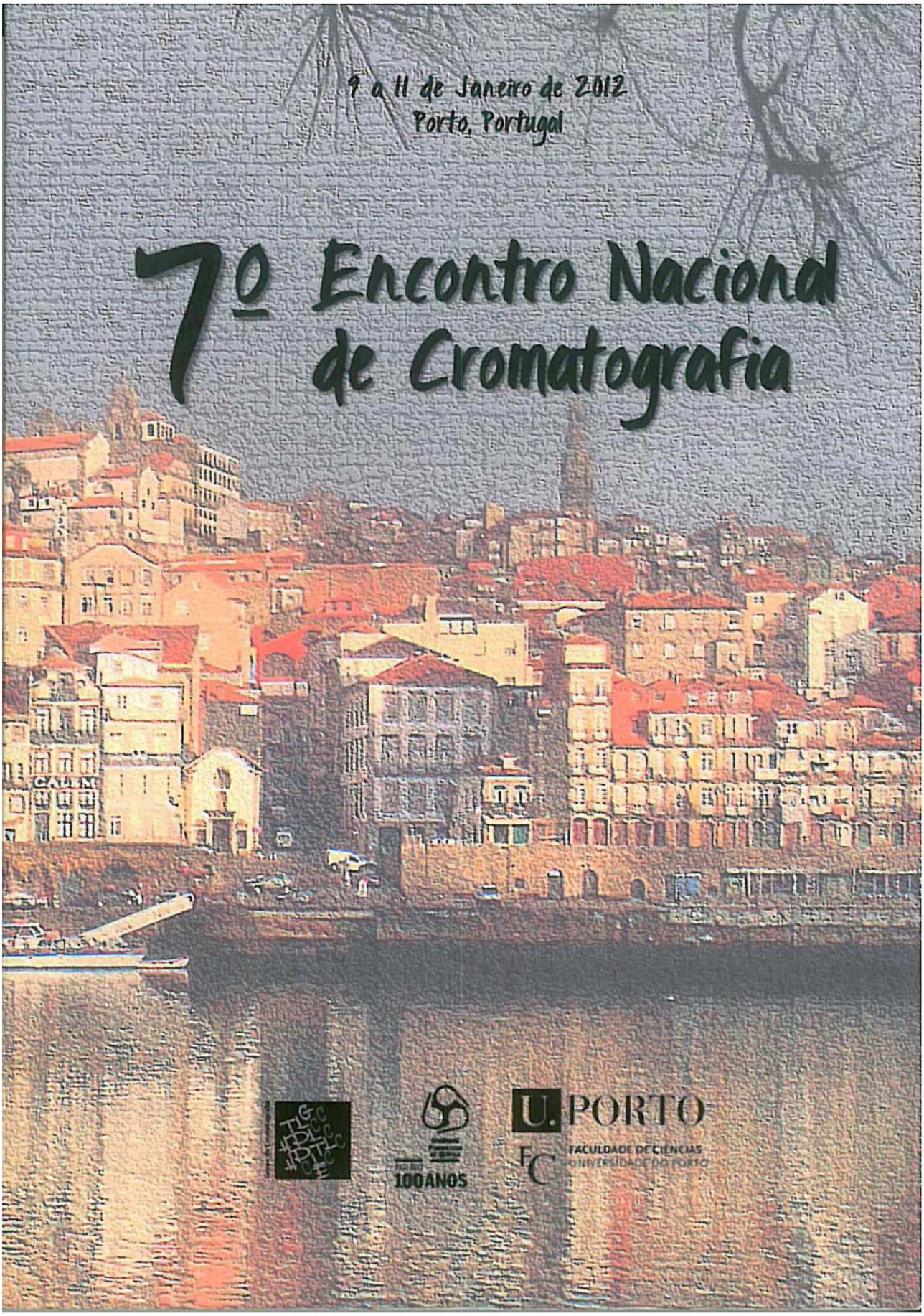
9 a 11 de Janeiro de 2012
Porto, Portugal

7º Encontro Nacional de Cromatografia



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Mentha aquatica: source of flavanone glycosides

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INTRODUCTION

Mentha aquatica L., commonly known as water mint, is a perennial herb that grows in Europe temperate regions.

This plant is used in traditional medicine for the treatment of external inflammation, rheumatism, colds, respiratory problems and difficult menstruation [1]. It has been described as a good source of phenolic compounds with high scavenger activity [2].

In this study, a purified ethanolic extract of *M. aquatica* was prepared and its specific phenolic composition was determined.

METHODS

The extract of the aerial parts of *M. aquatica* was prepared according the procedure described by Pereira et al [3] and analyzed by high performance liquid chromatography with diode array detection. Quantification of the main phenolic compounds was achieved by the external standard method. In order to determine the exact structure of phenolic compounds, the HPLC eluted fractions were manually collected and further analyzed by tandem electrospray mass spectrometry, as previously described [3]. The HPLC analysis was performed on a RP-C18 column 250 mm× 4 mm id, 5µm bead diameter (Temperature of 30ºC, flow rate of 1 mL/min). The mobile phase comprised (A) 0,1% formic acid in water and (B) acetonitrile.

RESULTS AND DISCUSSION

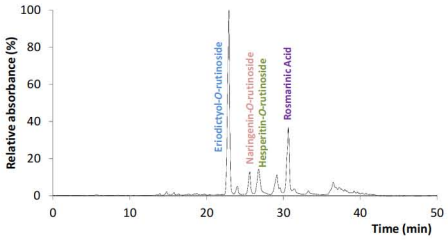

Fig. 1 - Chromatographic profile of purified ethanolic fractions of *M. aquatica* at 280 nm

Eriodictyol-7-*O*-rutinoside (MW 594 Da) represented approximately half of the total quantified phenolic compounds, while hesperitin-7-*O*-rutinoside (MW 610 Da) and naringenin-7-*O*-rutinoside (MW 580 Da) represented 15% and 8% of the phenolic content, respectively. Other flavonoids in the extract detected in smaller quantities, comprised the glucoside, rutinoside and glucoronide derivatives of luteolin (data not shown).

Table 1- ESI-MS^n data fragmentation of HPLC eluting fractions in purified ethanolic extract of *M. aquatica*

Compound	ESI-MS^n
Eriodictyol-7-*O*-rutinoside	MS^2 [595]: 287; MS^3: [287]: 151; MS^4: [151]: 107
Naringenin-7-*O*-rutinoside	MS^2 [579]: 271; MS^3: [271]: 177(5%), 151(100%)
Hesperitin-7-*O*-rutinoside	MS^2 [609]: 301(100); MS^3 [301]: 286(100%), 283(40%), 257(25%), 242(40%), 199(5%), 125(10%); MS^4 [286]: 268(5%), 258(75%), 242(100%), 199(5%), 174(5%); MS^5: [241]: 227(100%), 199(60%)
Rosmarinic acid	MS^2[359]: 315(2%), 223(10%), 197(15%), 179(20%), 161(100%), 133(1%); MS^3 [179]: 135

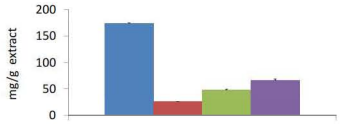

Fig. 2- Quantification of the main identified compounds in *M. aquatica* extract

CONCLUSIONS

⇨**The purified ethanolic extract of *M. aquatica* was mainly rich in flavanones namely eriodictyol-7-*O*-rutinoside, hesperitin-7-*O*-rutinoside and naringenin-7-*O*-rutinoside;**

⇨**It also contained moderate amounts of rosmarinic acid (20%), a phenolic acid very common in *Mentha* species and in *Lamiaceae* family.**

REFERENCES

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