Ptilostemon casabonae (L.) Greuter: some updates on a poorly known endemic species from Sardinia

3.2. *Ptilostemon casabonae* (L.) Greuter: some updates on a poorly known endemic species from Sardinia

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P. casabonae (L.) Greuter (Asteraceae) is a Tyrrhenian endemism localized in Sardinia, Corse and Hyères islands (France) (1).
In this work we collected and analysed *P. casabonae* samples from Sardinia. The island is characterized by the presence of only this species belonging to the genus, which is traditionally used for both food and therapeutic purposes (2,3). Since little is known on *P. casabonae*, the aim of this work is to obtain more information on this poorly studied plant. The hydroalcoholic extract of *P. casabonae* aerial parts was investigated here for the first time, in order to evaluate its phytochemical profile and its potential antioxidant activity. Moreover, the nuclear internal transcribed spacer (ITS) and 5S-rRNA-NTS genes and the mitochondrial ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (RbcL) and photosystem II protein D1(PsbA) genes were amplified and sequenced. *P. casabonae* RbcL, PsbA and 5s-rRNA-NTS regions were here sequenced for the first time. The comparison with other *Ptilostemon* sequences could give discriminating molecular markers.
The phytochemical analysis reveals that polyphenols were the most representative class of secondary metabolites found in *P. casabonae* (14% of the total extract). Approximately 20 phenolic compounds were identified or tentatively identified by HPLC-PDA-MS/MS. They include mainly flavonoids and caffeoylquinic acid derivatives.
Antioxidant results show an interesting activity of the extract, ascorbic acid (AA) and trolox (T) were used as positive controls (DPPH: IC_{50} 5.51 μg/mL Vs. 1 μg/mL of AA and 1.38 μg/mL of T; ABTS: IC_{50} 35.23 μg/mL Vs 4.85 μg/mL of AA and 7.94 μg/mL of T).
Sequences obtained in this work were compared with those present in NCBI database, also belonging to other *Ptilostemon* species. ITS and PsbA regions present an higher nucleotide variability and could be considered as good molecular markers. Unfortunately, no deposited 5S-rRNA-NTS sequences of closely related species are available, so it is not possible to make a comparison. However, this could be an input to further investigate this gene since it is a documented variable region (4).
These findings reveal that *P. casabonae* contains interesting compounds that may be responsible to the observed antioxidant activity. Moreover, the conducted biomolecular analysis can give powerful molecular markers for the species identification.
Further studies should be performed. Other types of extracts should be prepared in order to evaluate the presence of other interesting compounds, also, other potential biological activities could be investigated. Moreover, a comparison with *P. casabonae* from Corse could evidence similarities or differences in samples coming from the two islands were the species is considered endemic.

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