Population Diversity of Dalmatian Pyrethrum Based on Pyrethrin Content and Composition

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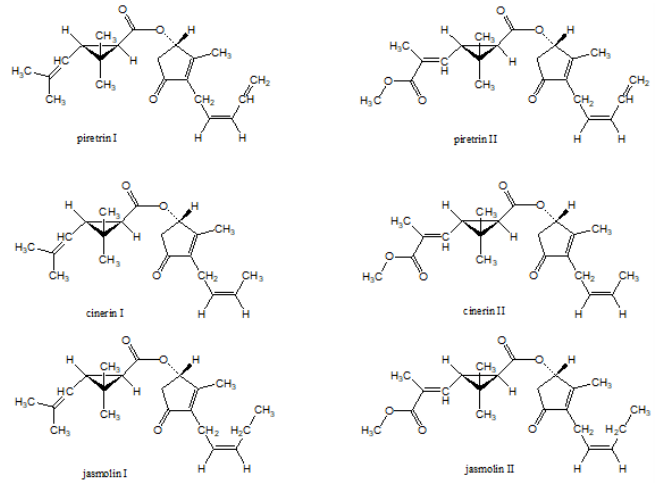
Introduction

- Dalmatian pyrethrum (*Tanacetum cinerariifolium* /Trevir./Sch. Bip.)
- perennial, outcrossing plant species, Asteraceae
- endemic to the Eastern coast of the Adriatic Sea
- PYRETHRIN - natural insecticide
- 6 compounds: pyrethrin I i II (PI, PII), cinerin I i II (CI, CII), jasmolin I i II (JI, JII)

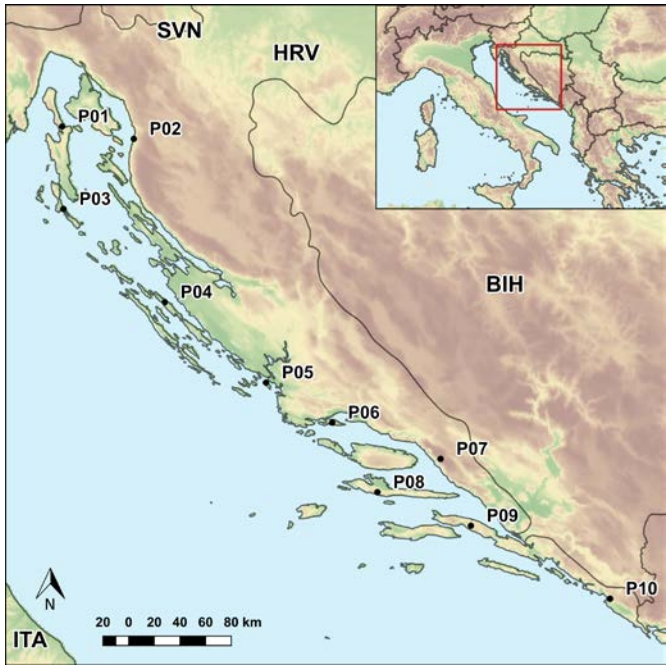


Objectives

(1) Evaluation of **biochemical diversity** of natural Dalmatian pyrethrum populations; intra- and interpopulation diversity with regards to pyrethrin content and composition

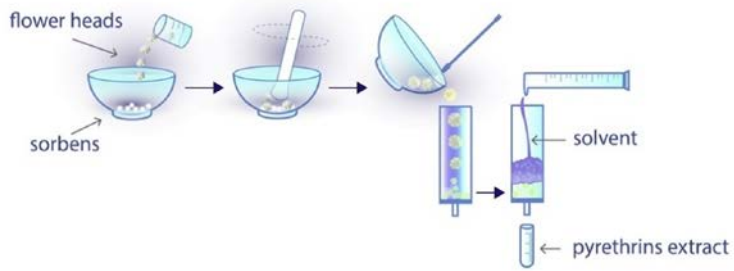
(2) Determination of the **relationship** between spatio-ecological variables and total pyrethrin content and six pyrethrin components
- temperature and precipitation related variables, altitude, soil properties, solar radiation, and distance from the coastline

Materials and methods

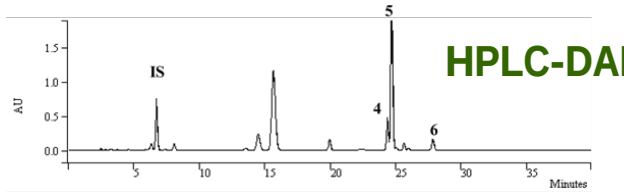


Sampling: 10 populations

Field trial



MSPD extraction



HPLC-DAD

Extraction and quantification

Results and conclusion

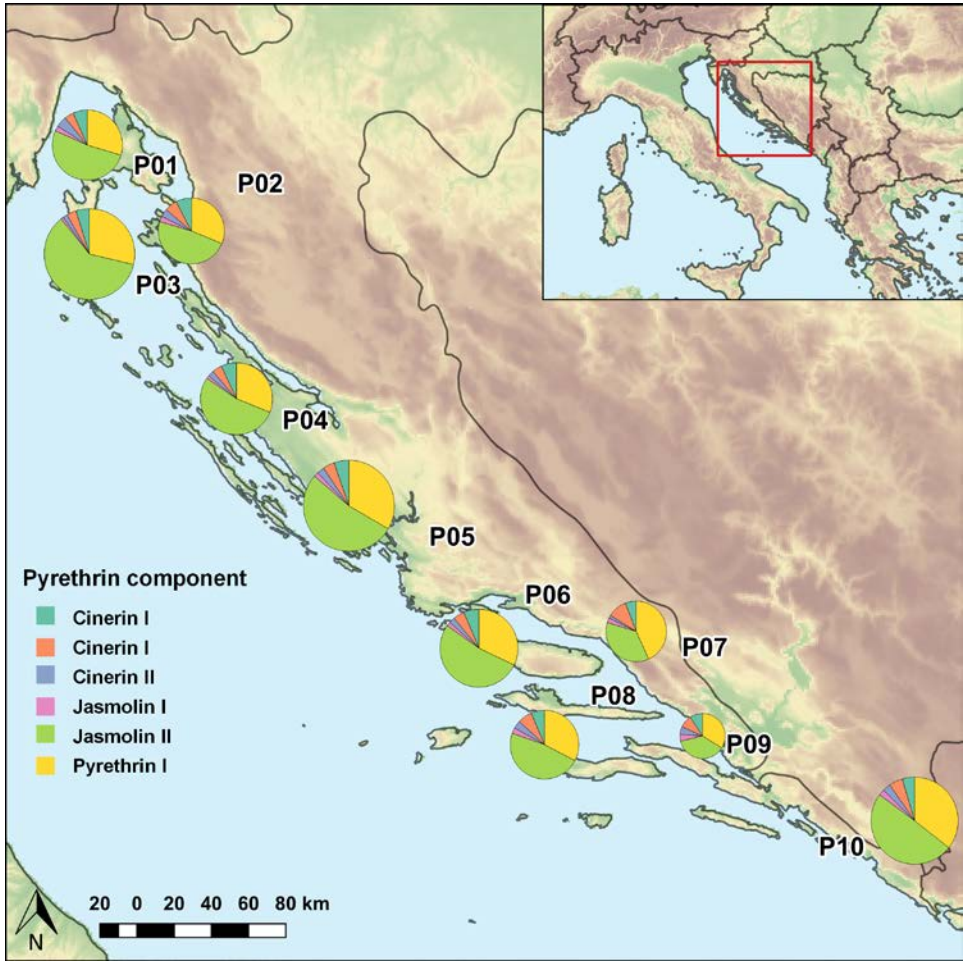
Total pyrethrin content (TP)
0.10 – 1.35% DW; avg. 0.58%

Ratio P I/II
- **0.21 (P06) – 5.88 (P03), avg. 1.77**

Correlations - pyrethrin components
- **negative PI and PII**
- **positive PI and TP**

Correlations pyrethrins - spatio-ecological variables
Temperature (BIO1-11): significant correlations with TP,PI,PII,CII
Temp. Annual Range - significant neg. correlation with TP and PI, positive with other compounds; altitude same correlation pattern
Precipitation (BIO12-19): non-significant

- **future breeding programs**
- **genetic resources conservation**



THANK YOU FOR YOUR ATTENTION

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