



Population Diversity of Dalmatian Pyrethrum Based on Pyrethrin Content and Composition

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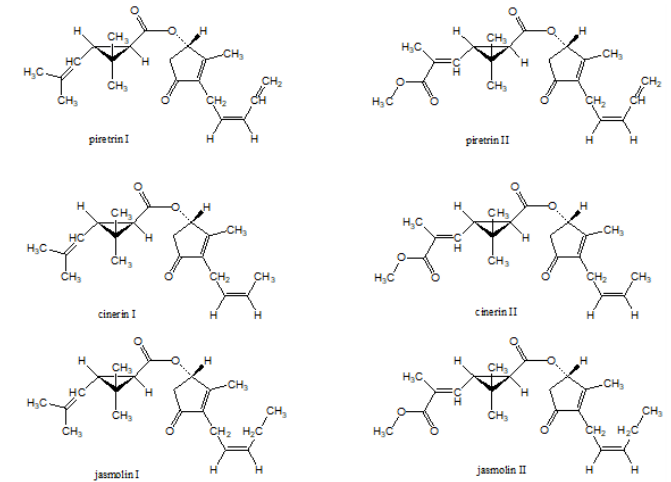
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Introduction

- 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)

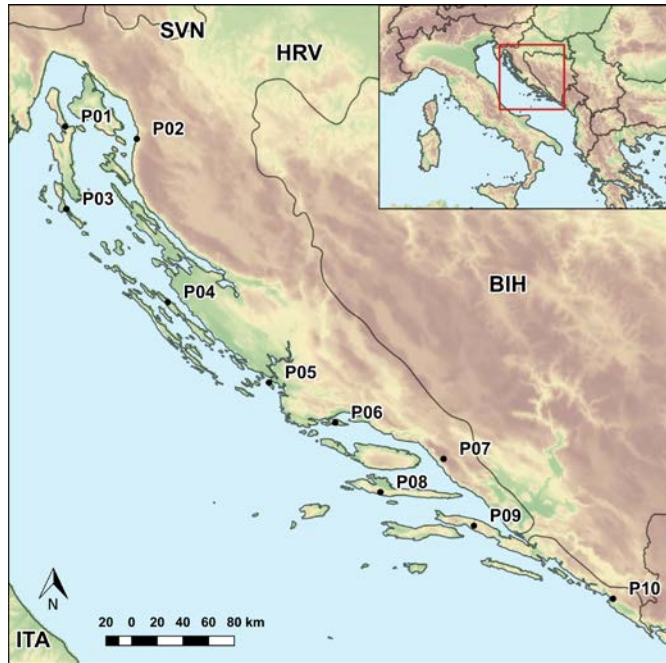


Objectives

- (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



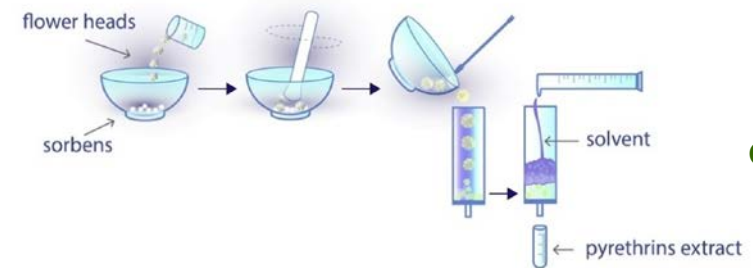
Materials and methods



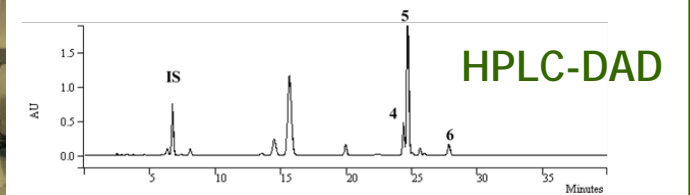
Sampling: 10 populations



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

- highly significant, negative corr. PI and PII
- Highly significant, positive corr. PI and TP

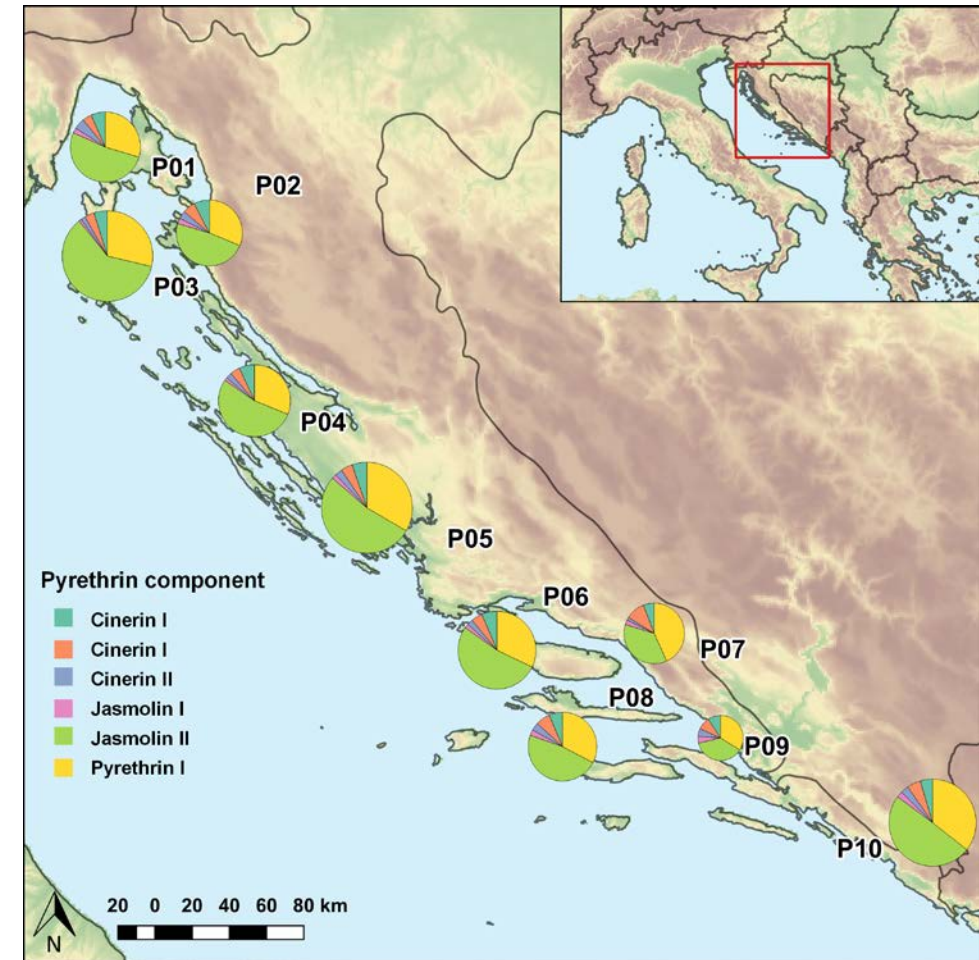
Correlations pyrethrins - spatio-ecological variables

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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Web page: pyrdiv.agr.hr

