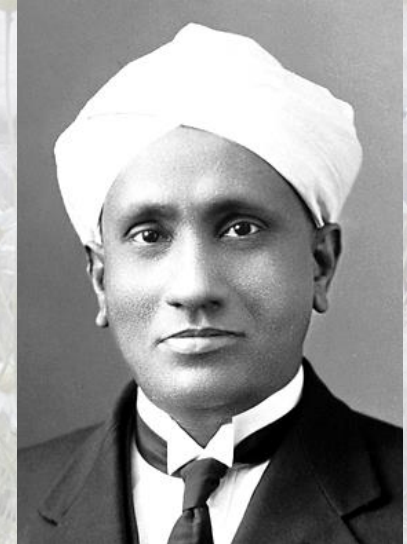


**UTVRĐIVANJE PIRETRINA DALMATINSKOG
BUHAČA
POMOĆU RAMANOVE SPEKTROSKOPIJE**

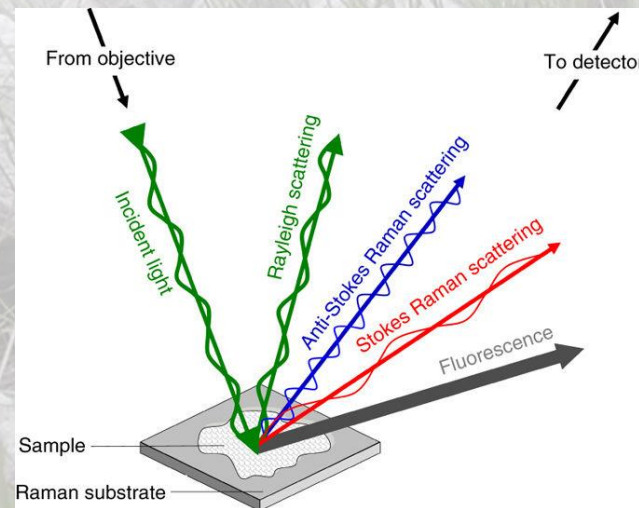
Ivan Šoštarić, Ilinka Pećinar, Filip Varga,
Zora Dajić Stevanović,
Zlatko Šatović, Zlatko Liber, Martina
Grdiša

RAMANOVA Spektroskopija

- C. V. Raman je 1928. godine eksperimentalno utvrdio neelastično rasejavanje svetlosti
- Rejljevo rasejanje je iste talasne dužine kao i slučajno rasejanje
- Mali deo defraktovanog svetla ima promenjenu frekvenciju – Ramanovo rasejanje



Sir Chandrasekhara Venkata Raman

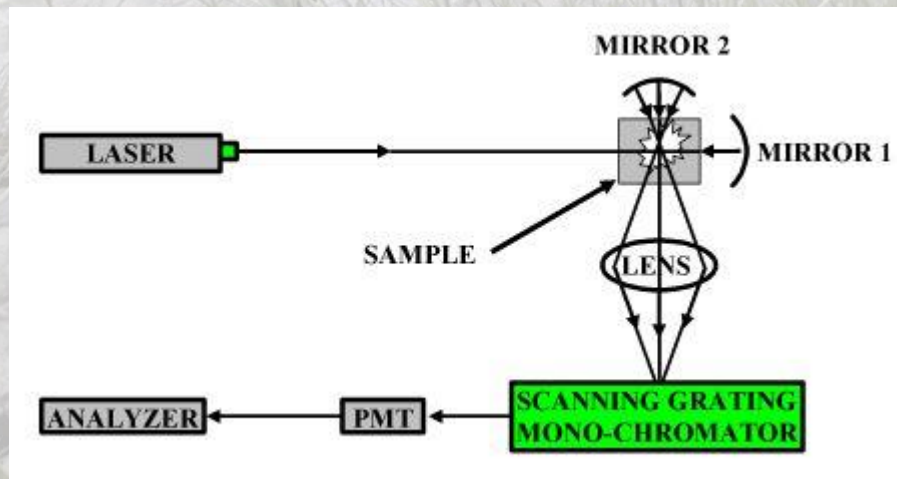


Prema Butler i sar. (2016)

RAMANOVA Spektroskopija

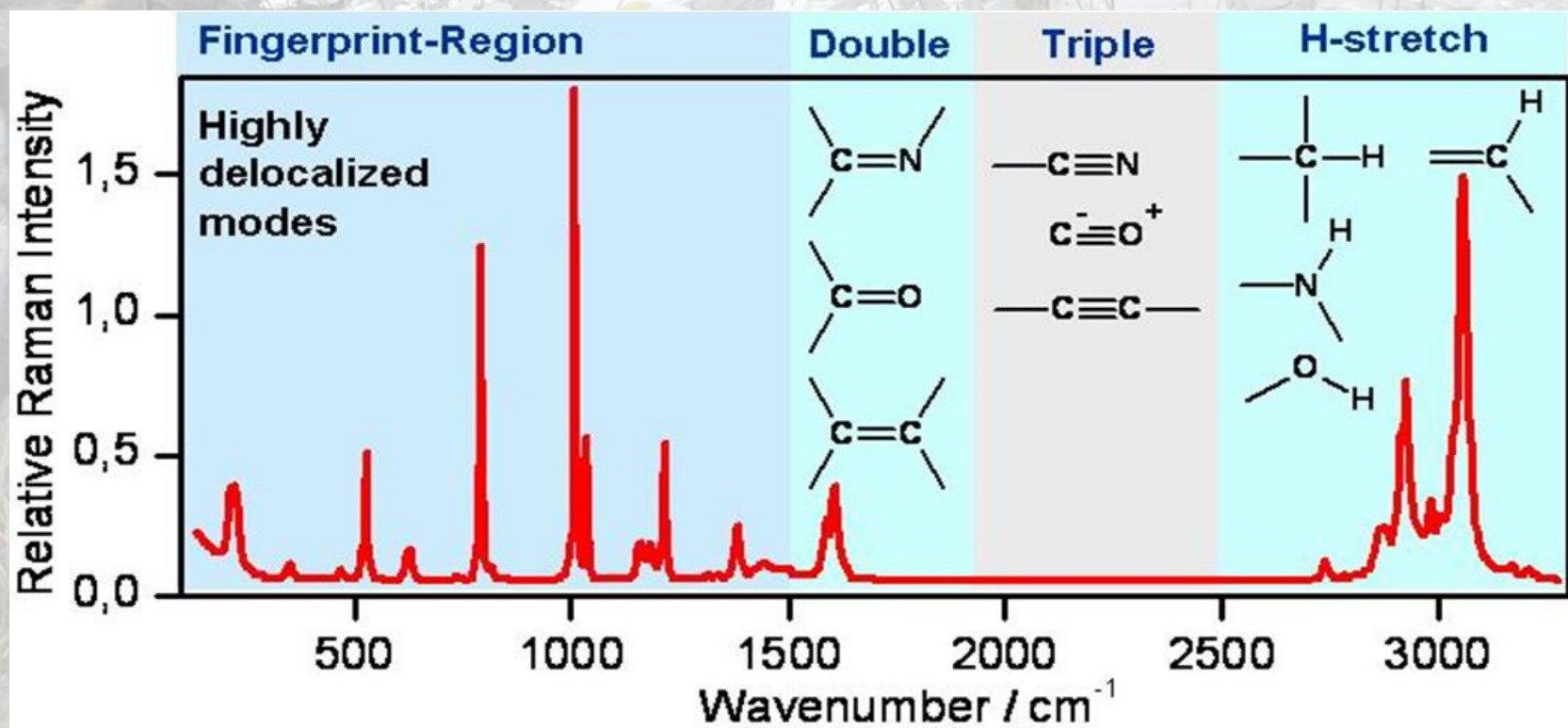
Sistem Ramanove spektroskopije se sastoji od četiri glavne komponente:

- izvora zračenja koji uglavnom predstavlja laser kontinualnog tipa,
- sistema za osvetljavanje uzorka,
- sistema za razdvajanje talasnih dužina
- sistema za detekciju i obradu signala



XploRA Raman spectrometer Horiba Jobin Yvon

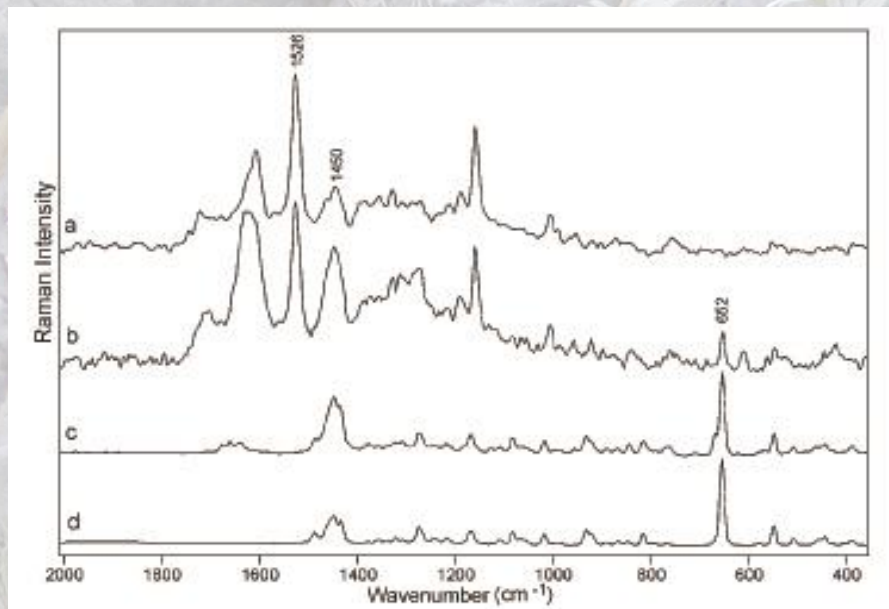
RAMANOVA Spektroskopija



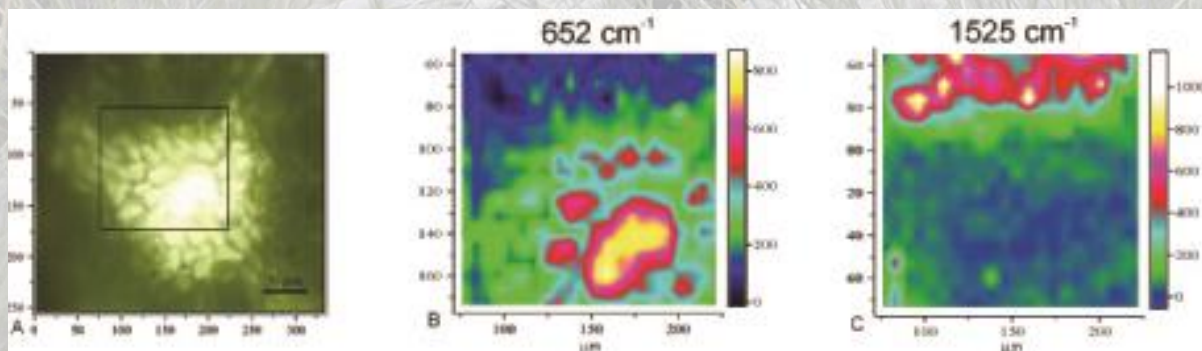
https://www.fisi.polimi.it/en/research/research_structures/laboratories/54133

- Fingerprint region daje informacije o karakterističnim strukturama u molekulu

RAMANOVA Spektroskopija

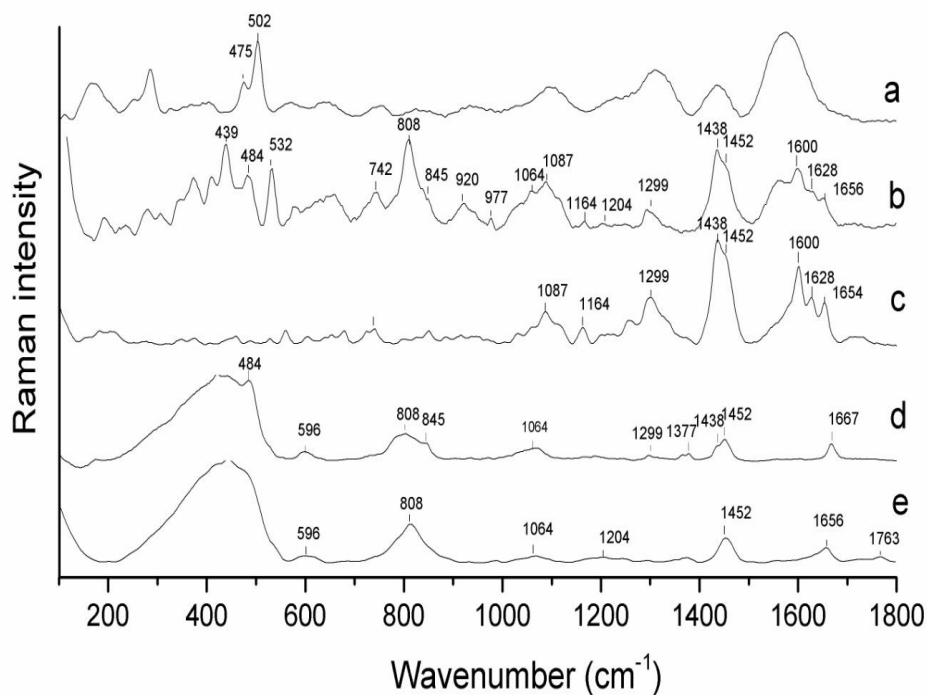


NIR-FT Raman spektar; a. Zeleni deo lista *Eucalyptus globulus* van žlezdanog kanala; b. Žlezdani kanal; c. Ekstrahovano etarsko ulje; d. Standard 1,8-cineol. (iz Baranska i sar., 2005)



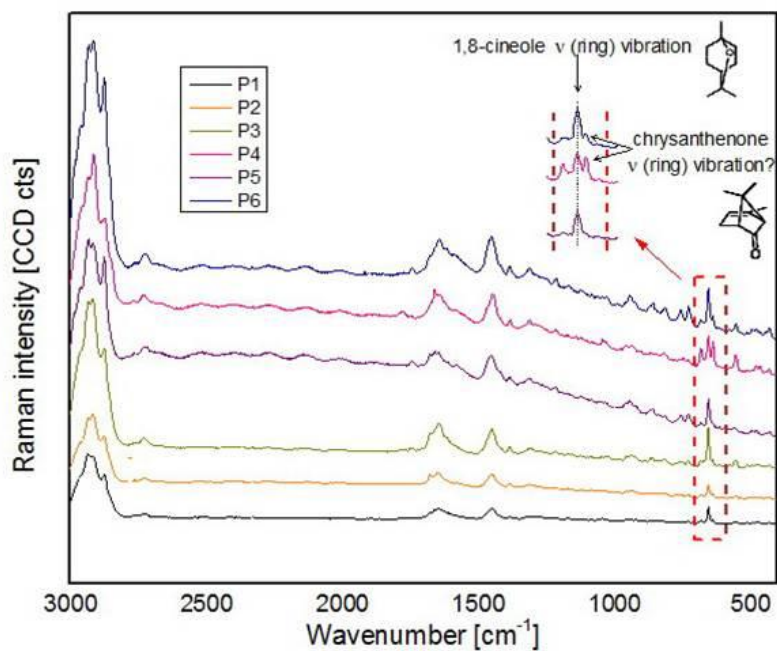
A) Deo lista *Eucalyptus cinerea* sa žlezdanim kanalom; B) Raman mapa iste površine na 652 cm⁻¹ što odgovara 1,8-cineolu; C) Raman mapa iste površine na 1525 cm⁻¹ što odgovara karotenima; (prema Baranska i sar., 2005).

RAMANOVA Spektroskopija

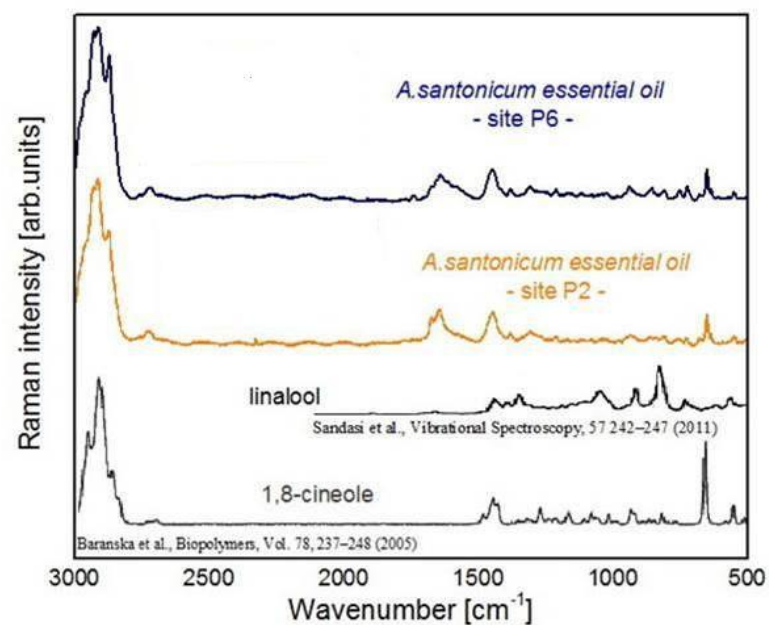


Nepeta ratanjensis: Ramanov Spektar u regionu od 100 do 1800 cm⁻¹: a) kapitatna i b) peltatna glandularna trihoma, c) neglandularna trihoma lista, d) nepetalactol standard, i e) etarsko ulje *N. ratanjensis* (sadržaj 88 % nepetalactone) (Pećinar i sar., *in press*)

RAMANOVA Spektroskopija



Ramanovi spektri etarskih ulja 6 populacija halofitske vrste *Artemisia santonicum* (Todorović i sar., 2016)



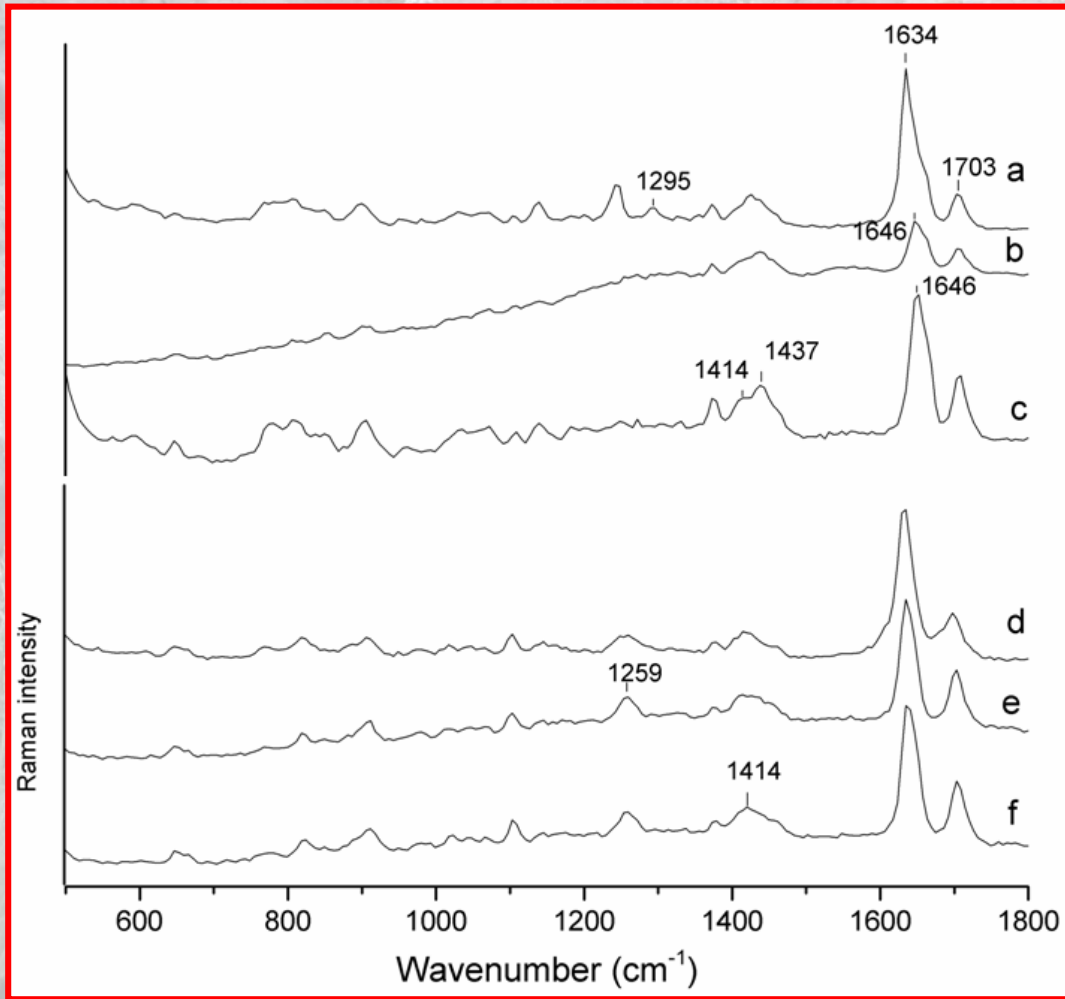
Poređenje spektara sa spektrima 1,8-cineola i linalola

Tanacetum cinerariifolium /Trev./ Schultz Bip. (Asteraceae)

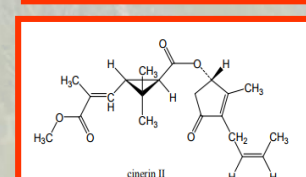
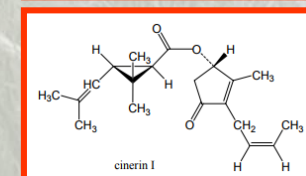
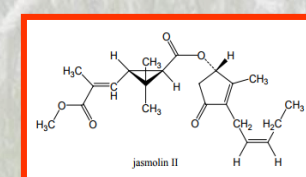
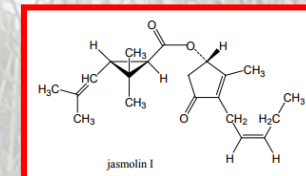
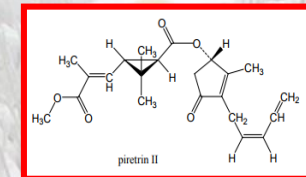
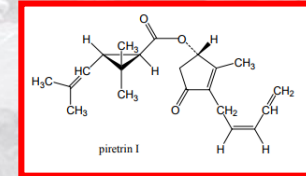
- Endemična vrsta istočne jadranske obale
- Gaji se i u drugim delovima sveta
- Aktivna insekticidna supstanca - piretrin



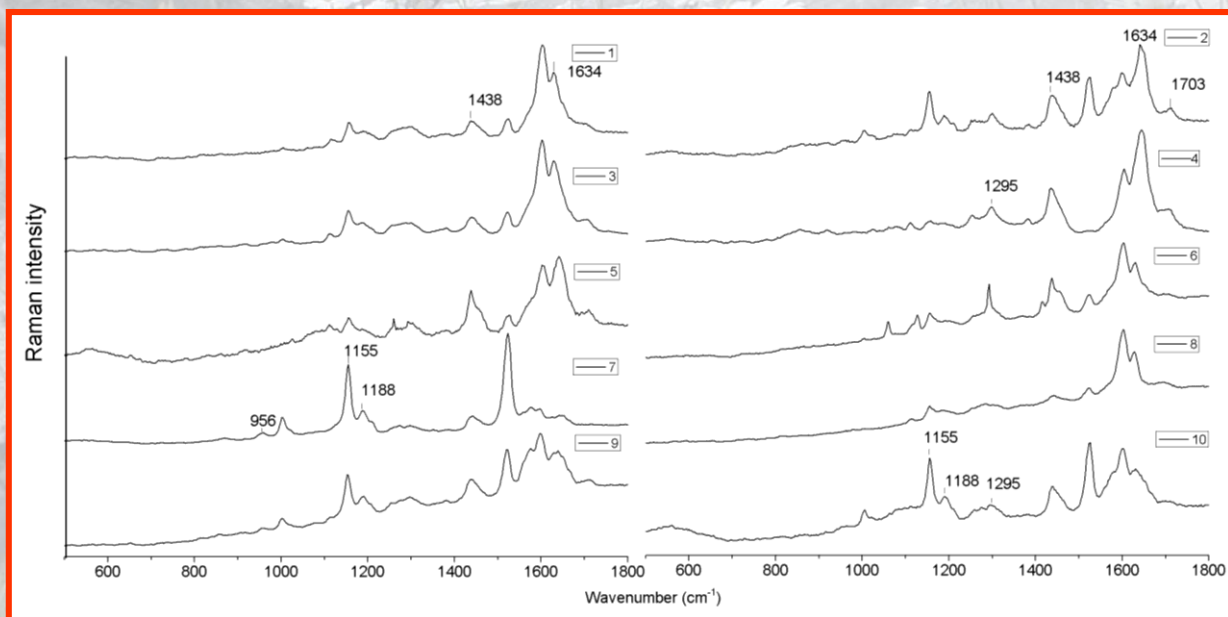
RAMANOVI Spektri piretrina



a) Piretrin I, b) piretrina II, c) jasmolin I, d) jasmolin II, e) cinerin I, f) cinerin II



RAMANOVI Spektri piretrina



| Population | Location |
|------------|-----------------|
| 1 | Cres-Kimen |
| 2 | Mali Lošinj |
| 3 | Krk |
| 4 | Zlarin |
| 5 | Primošten- |
| | Kruševo |
| 6 | Kozjak |
| 7 | Hvar |
| 8 | Kotiški Stanovi |
| 9 | Lađena |
| 10 | Pelješac- |
| | Trstenik |

- Informativan je region od 600 do 1710 cm^{-1}
- Trake na 1634, 1437 i 1703 cm^{-1} pokazuju prisustvo šest piretrina
- Trake na 1646, 1273 i 956 cm^{-1} pokazuju prisustvo jasmolina I cinerina I
- Trake na 1259 i 1295 cm^{-1} pokazuju prisustvo piretrina I

A photograph of a field of white daisies with yellow centers, growing on a rocky slope. The flowers are in various stages of bloom, and the background shows grey rocks and some green foliage. The overall scene is bright and natural.

Hvala na pažnji

botany@agrif.bg.ac.rs