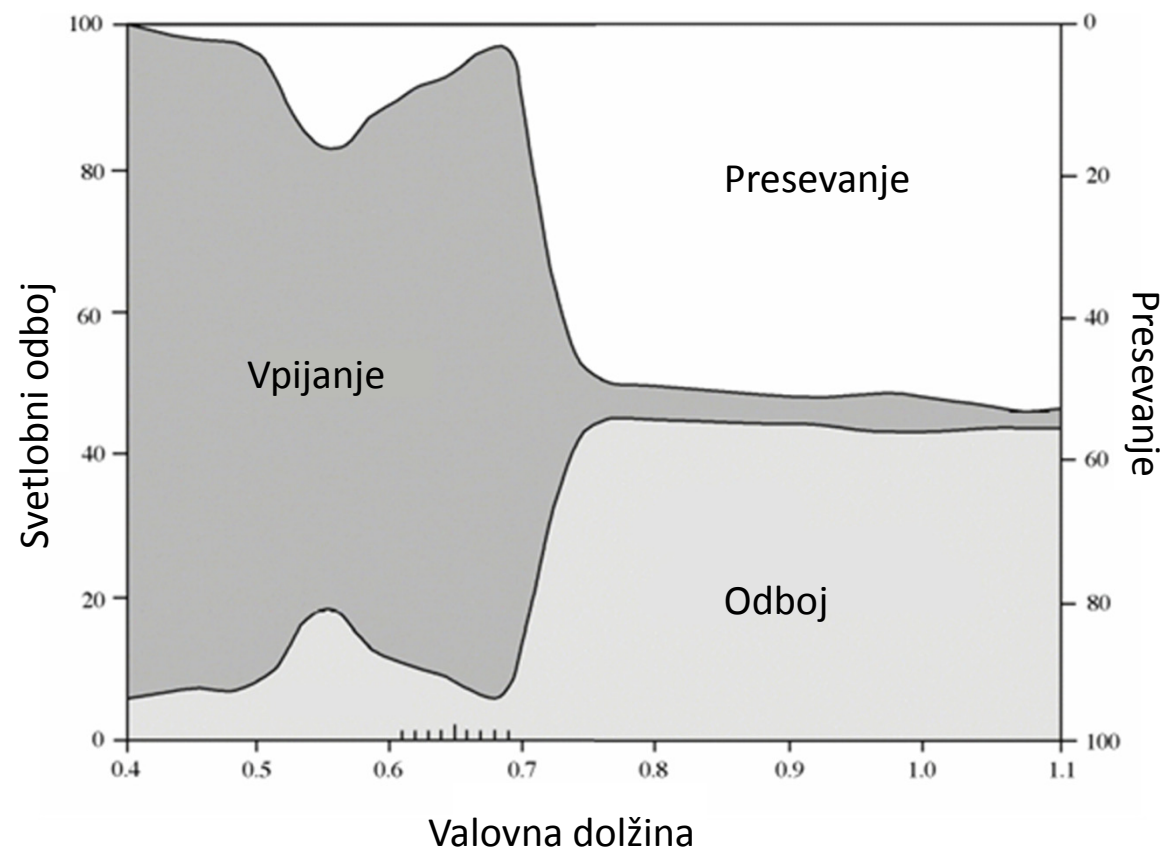
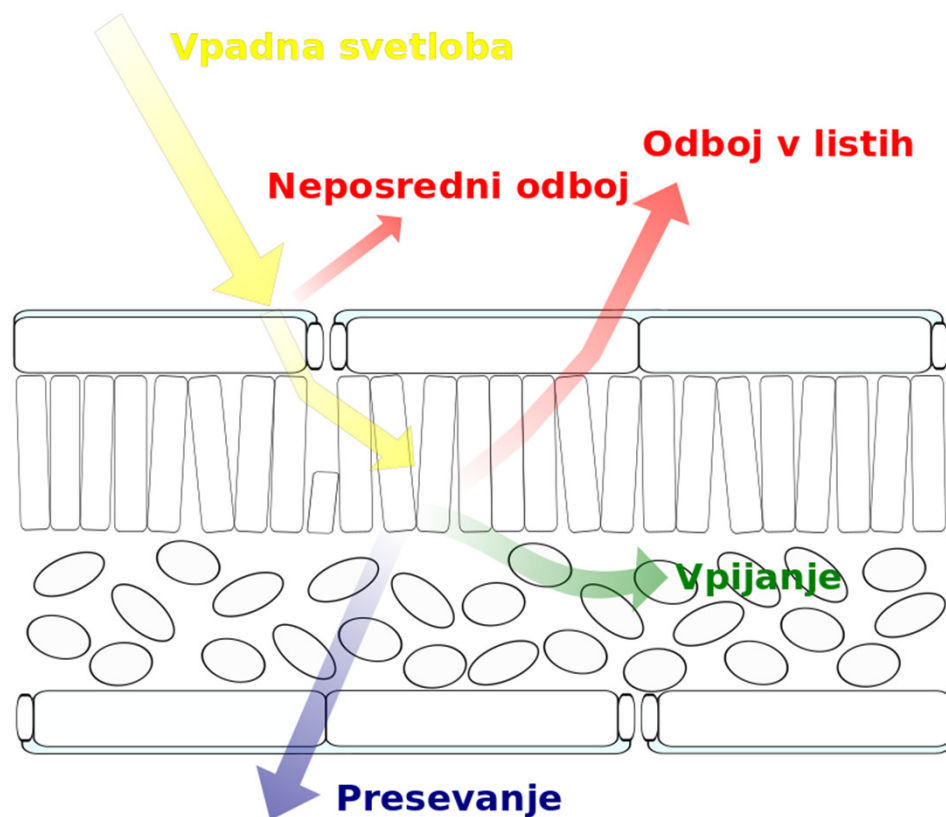


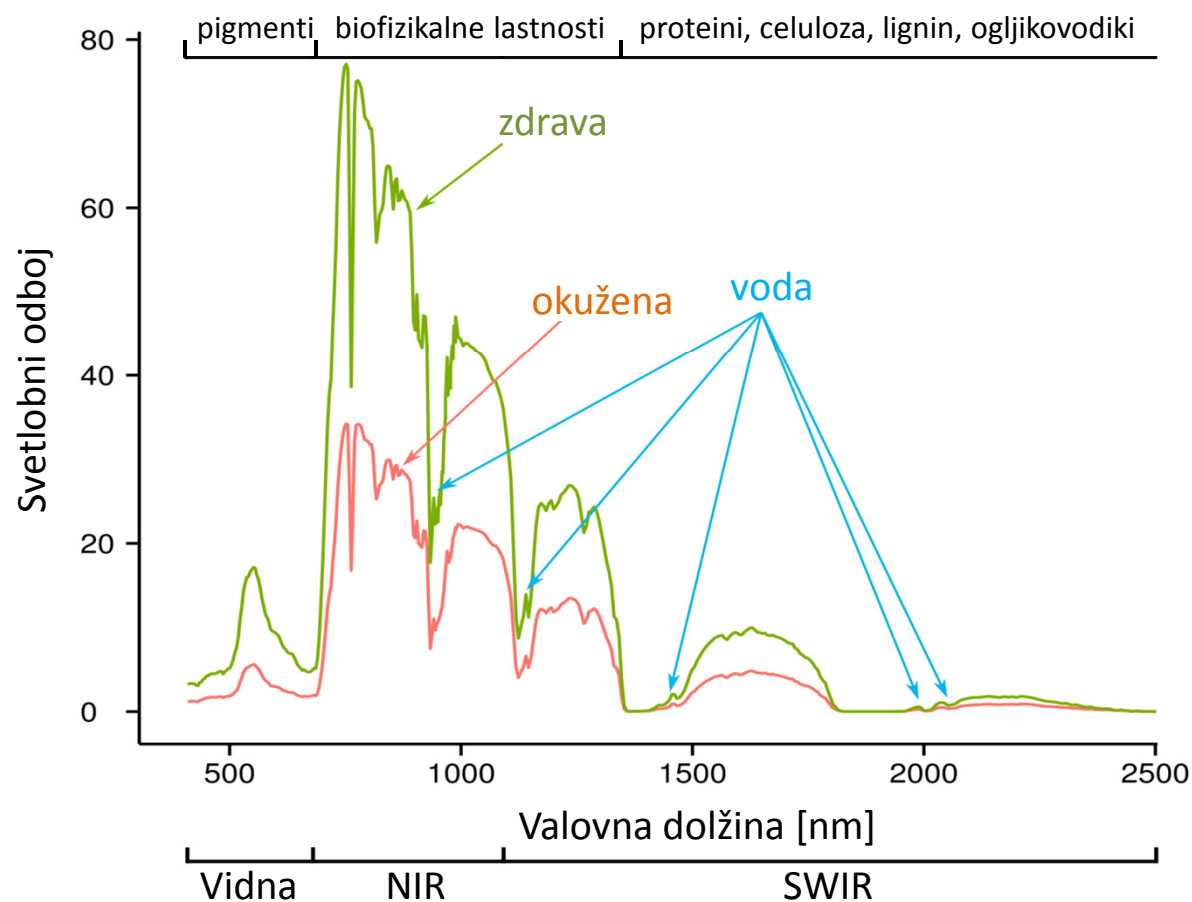
HIPERSPEKTRALNO SLIKANJE

Sejem AGRA, Gornja Radgona, avgust 2019

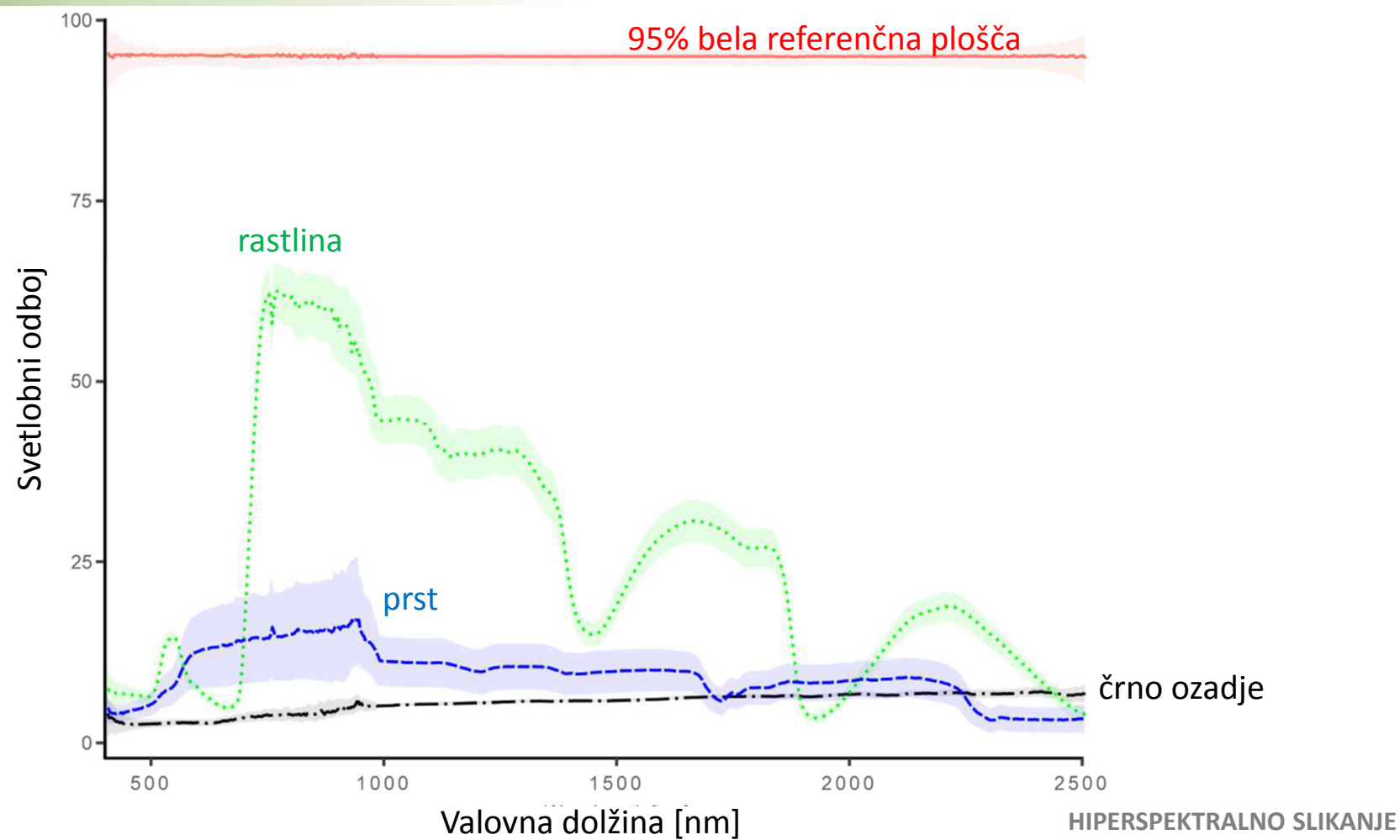
Interakcije med svetlobo in rastlinami



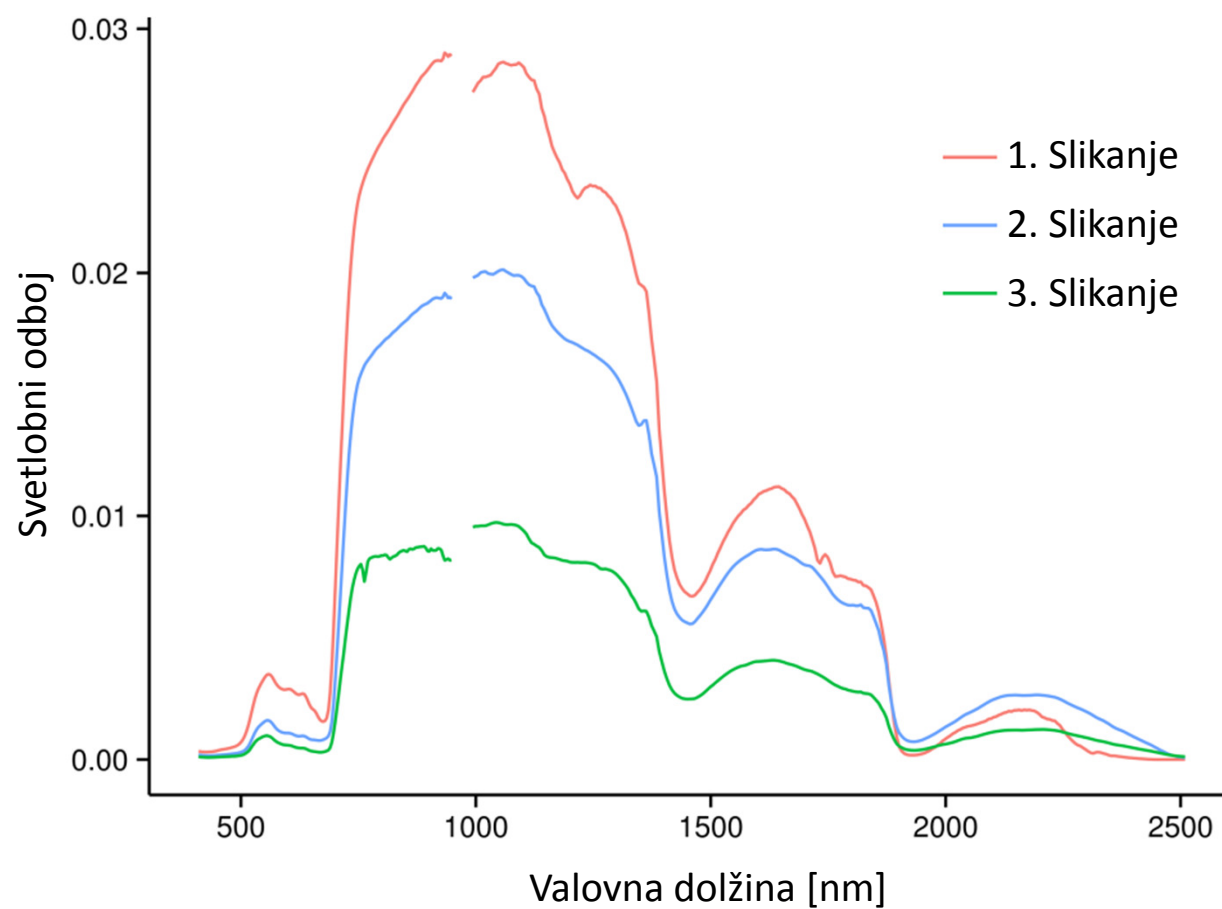
Spektralni podpis rastlin



Primeri spektralnih podpisov

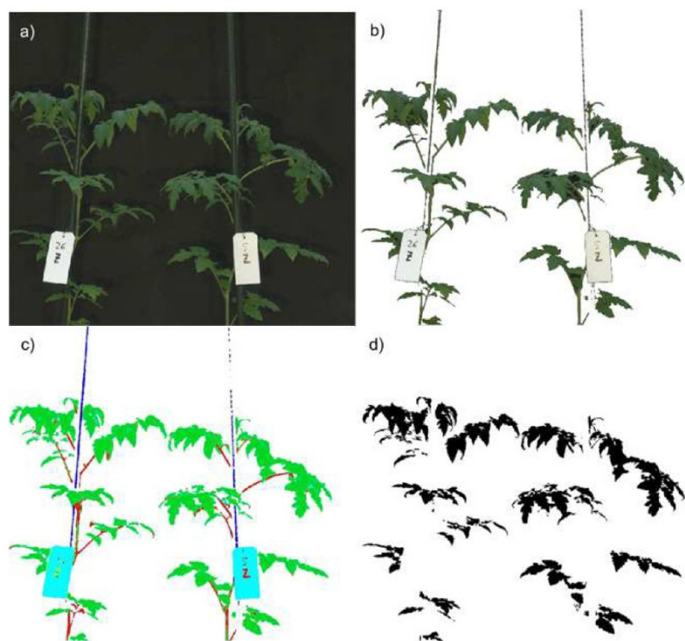


Fenološki razvoj rastlin

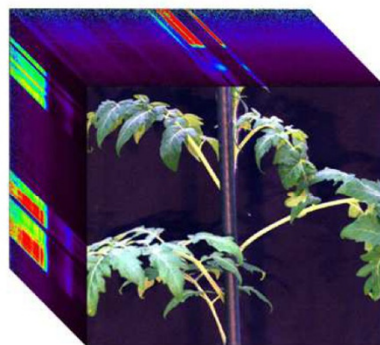


Postopek analize hiperspektralnih slik

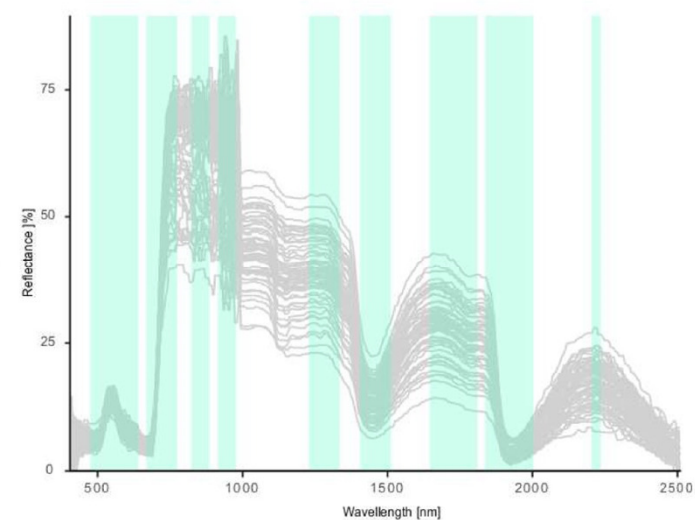
Izvlačenje relevantnih
rastrskih celic



Predprocesiranje podatkov

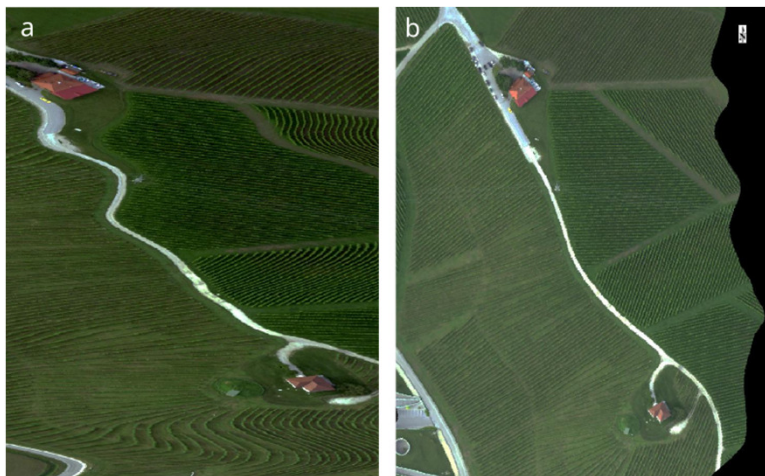


Klasifikacije in določanje
relevantnih valovnih dolžin

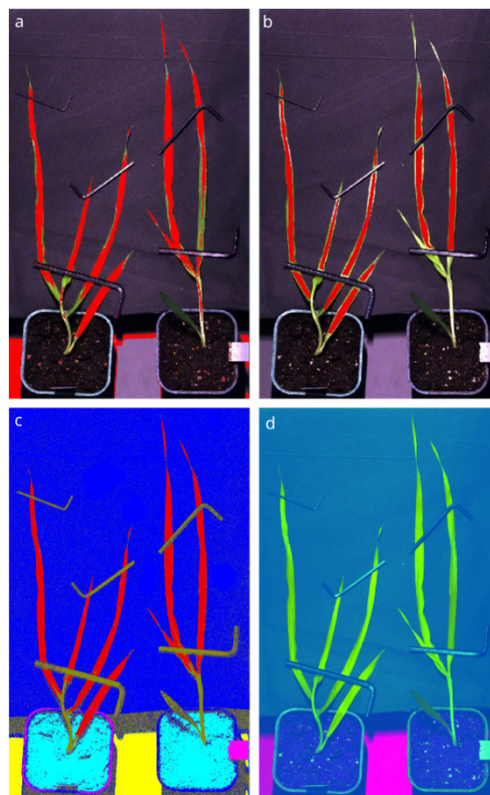


Predprocesiranje podatkov

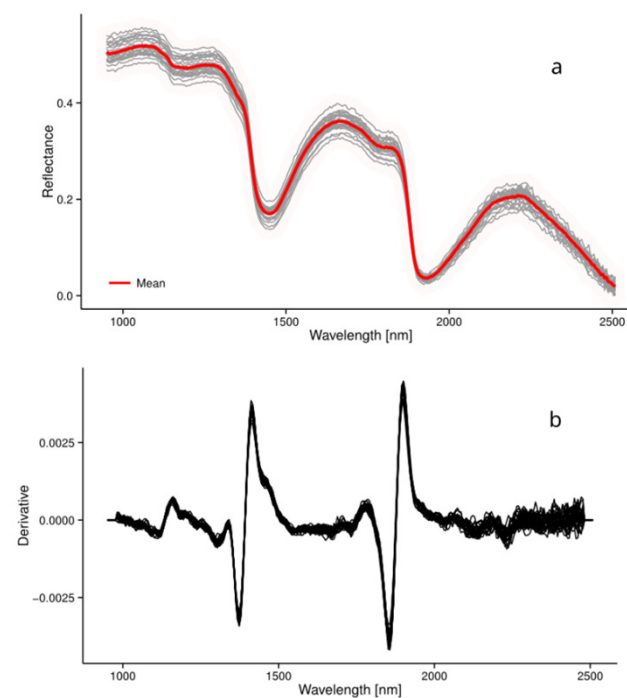
Georeferenciranje in
ortorektifikacija



Izvelčenje podatkov

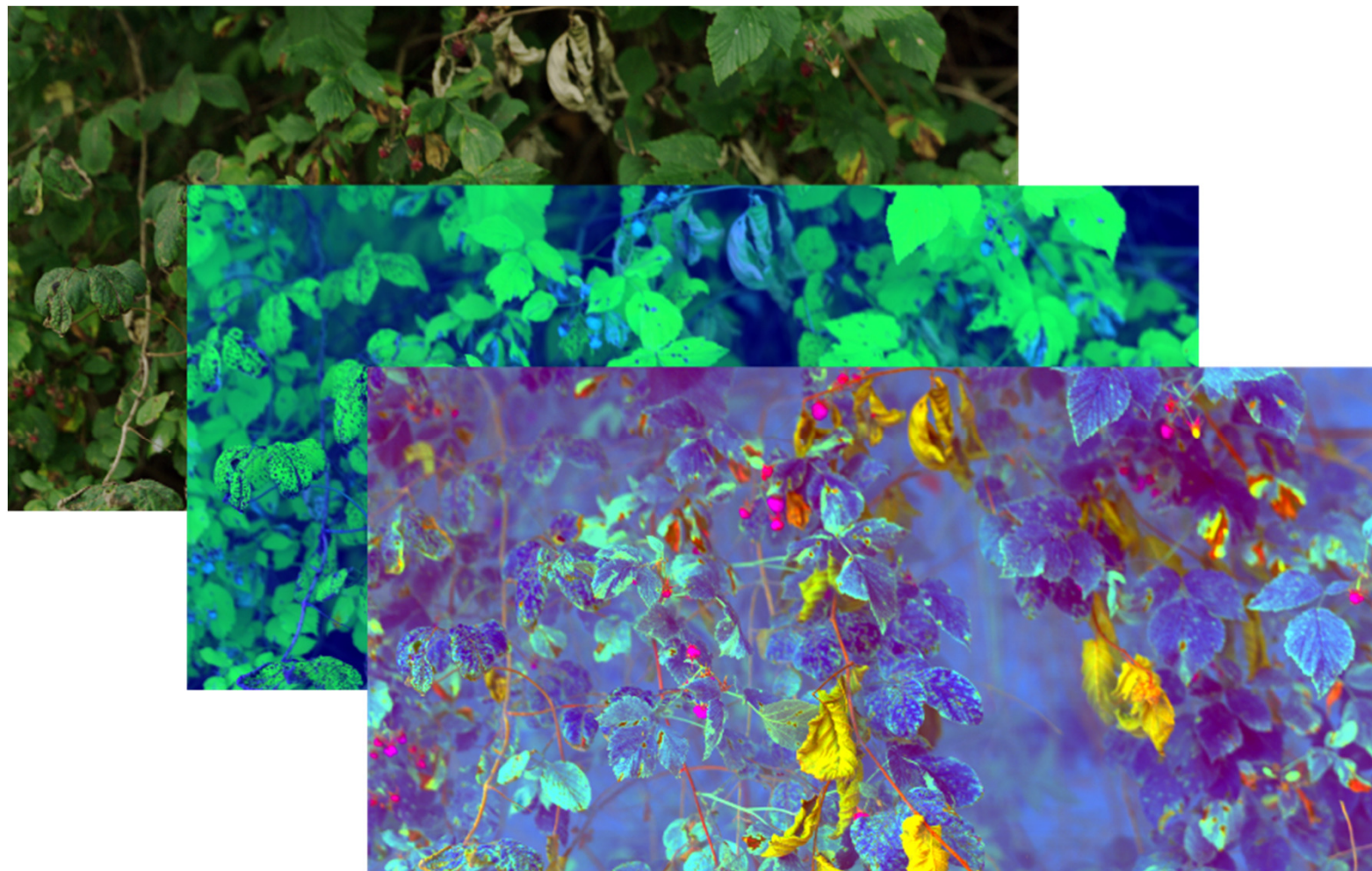


Izračun derivatov, atmosferskih
korekcij in manjšanje
dimenzionalnosti

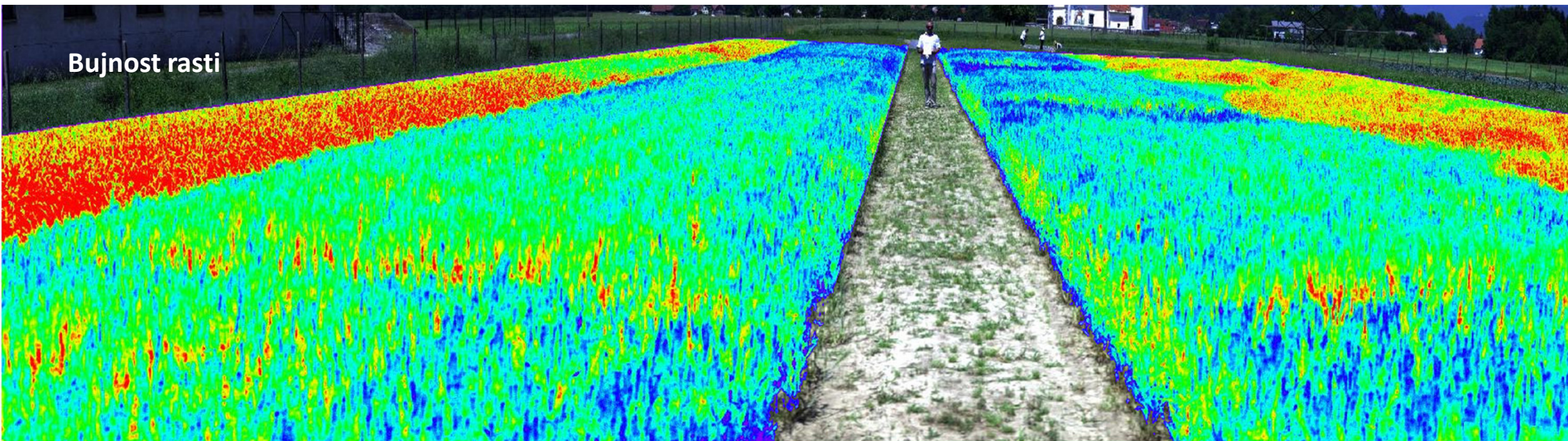


PCA analiza hiperspektralnega posnetka

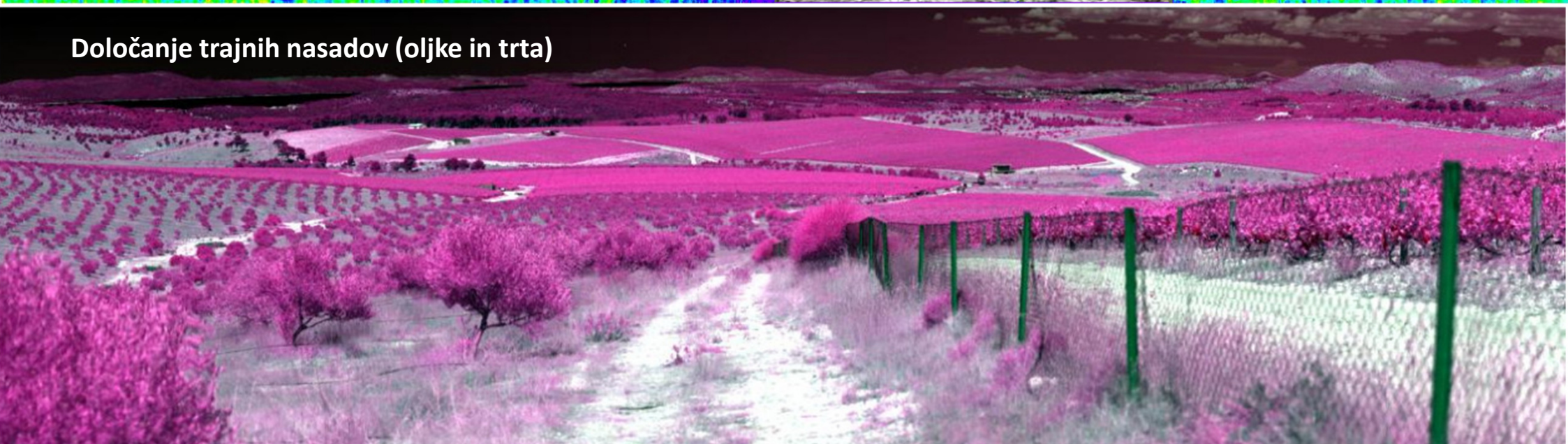
Ločevanje
med živimi
in mrtvimi
listi,
določanje
vej, bolnih
listov ter
jagod
robidovja.



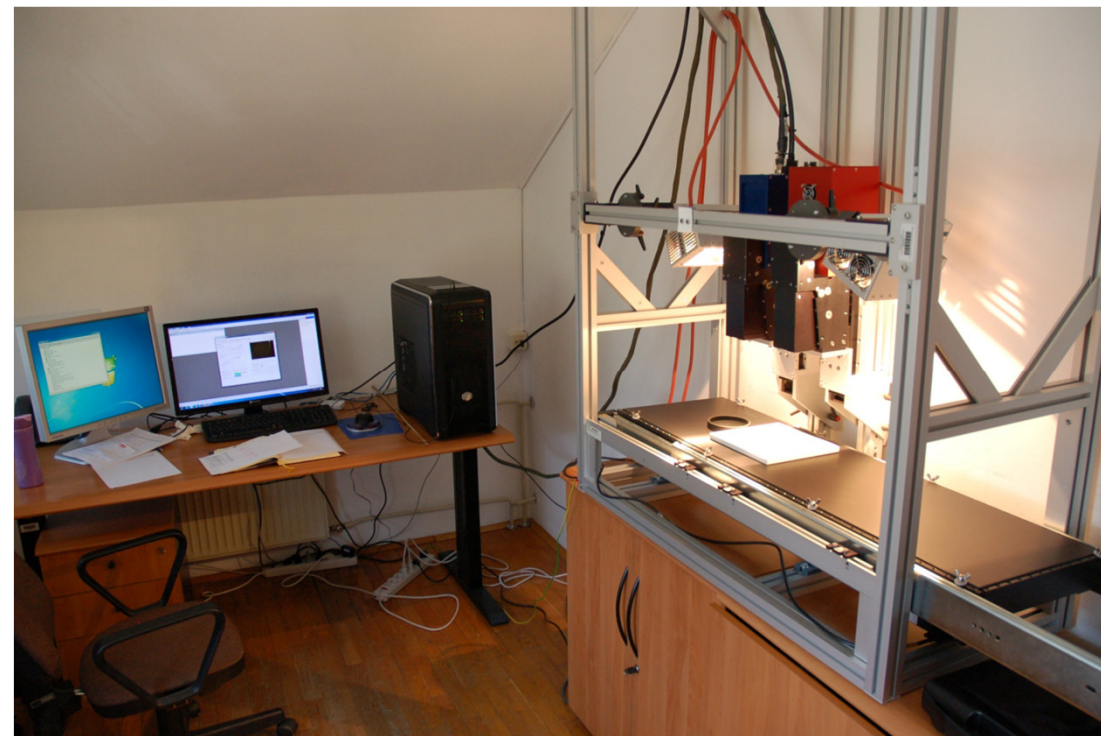
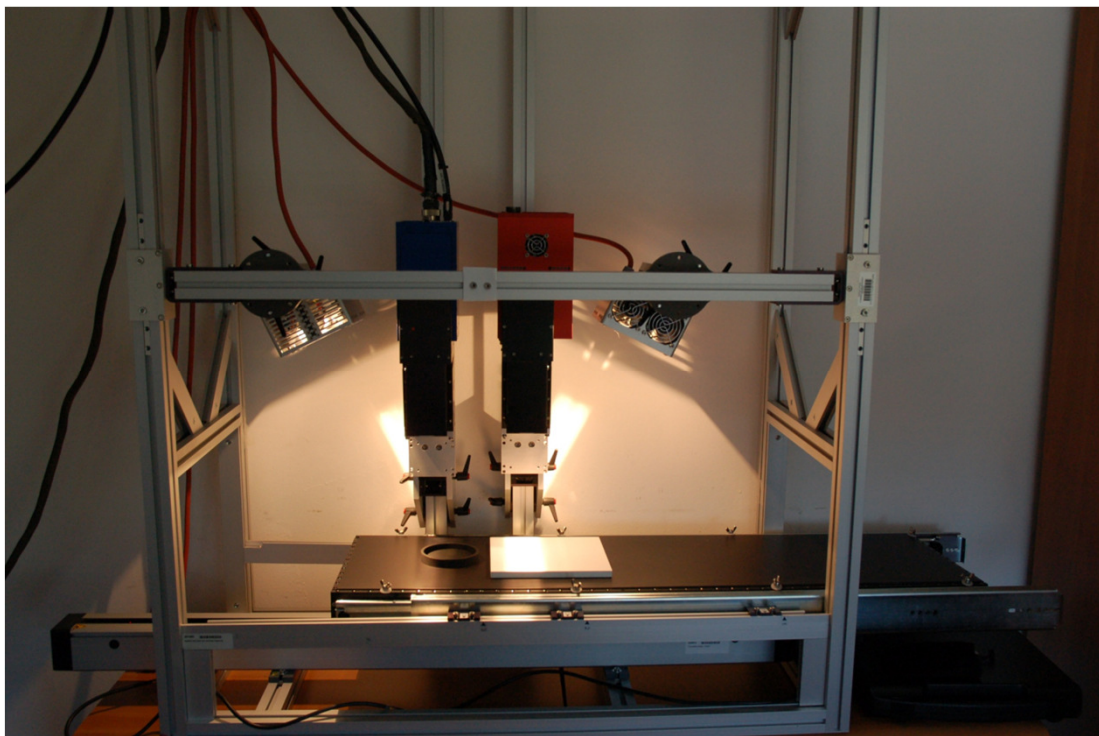
Bujnost rasti



Določanje trajnih nasadov (oljke in trta)



Delo v laboratoriju

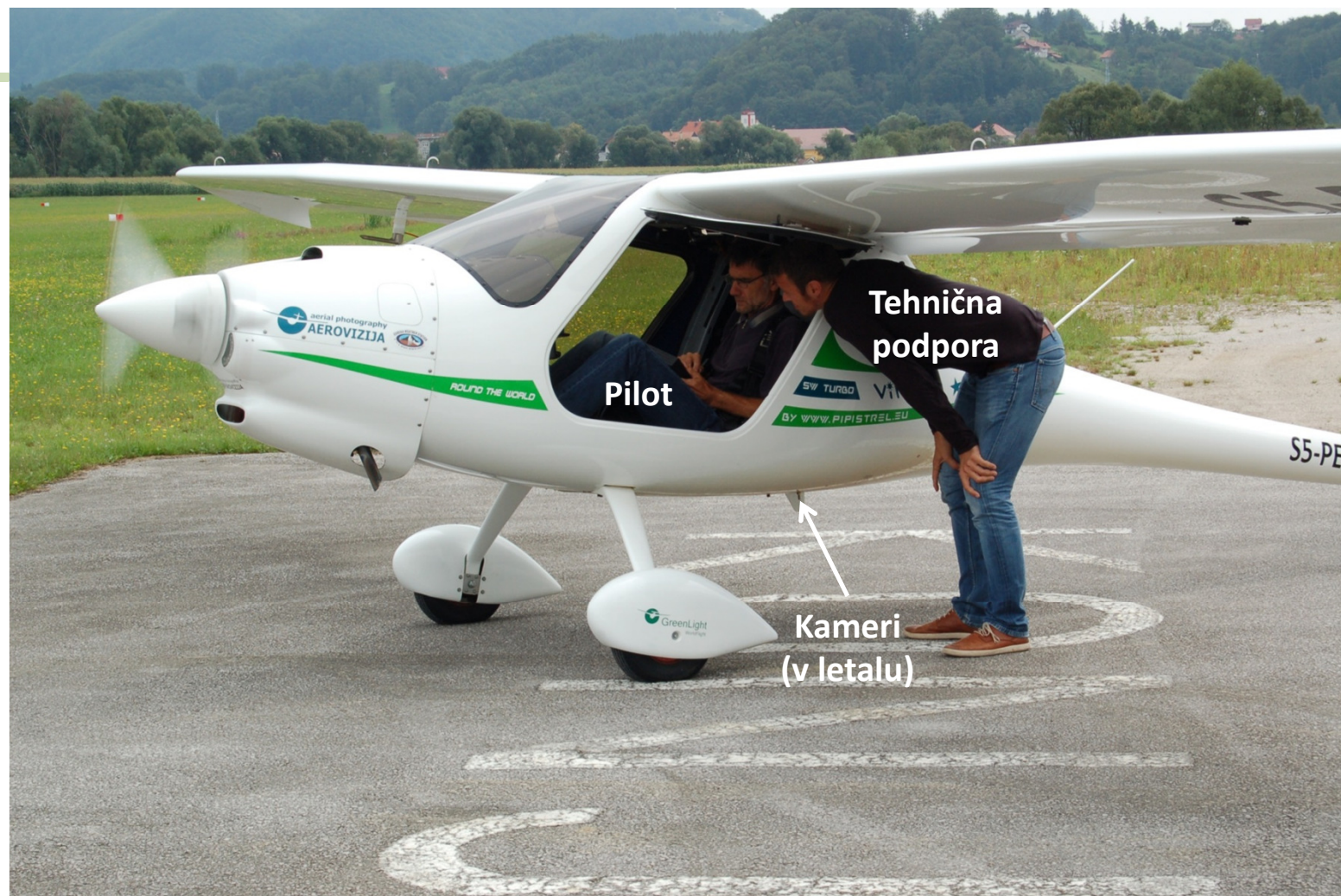
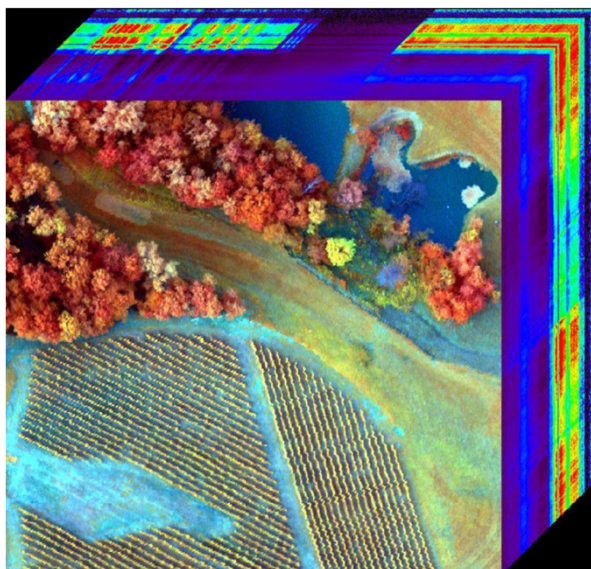


Delo na terenu



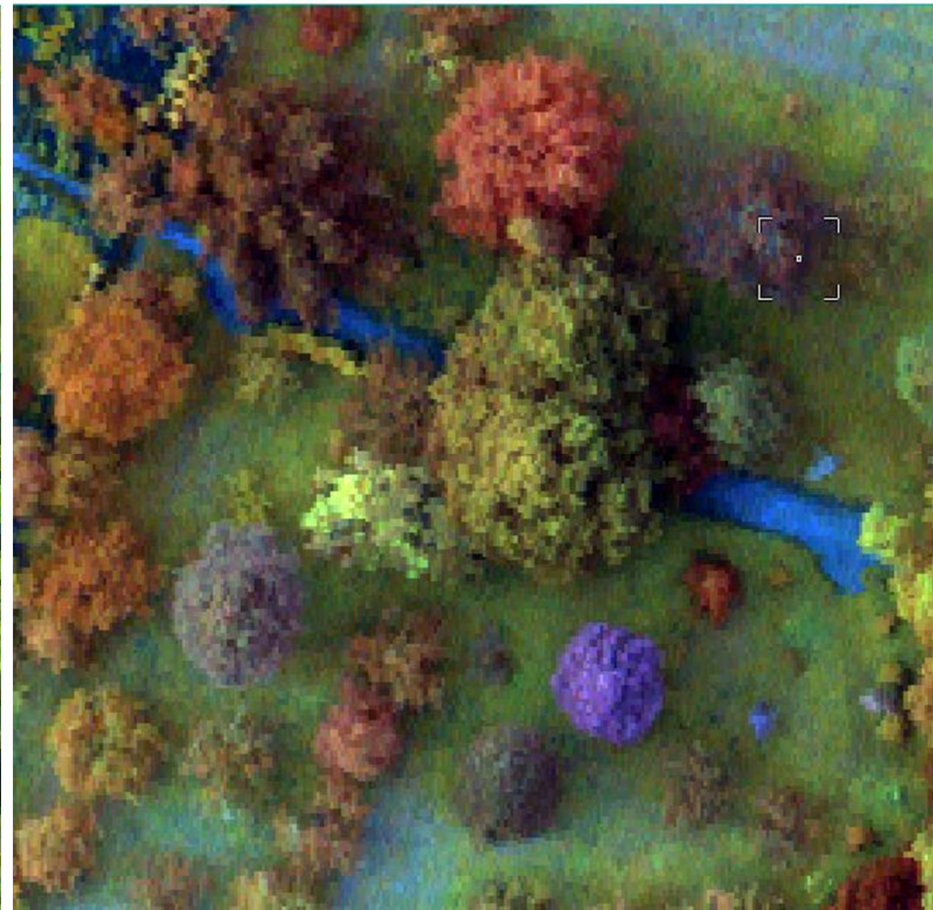
Zračno slikanje

Ultralahko letalo v
sodelovanju z
Matevžem Lenarčičem
in podjetjem Aerovizija
d.o.o.

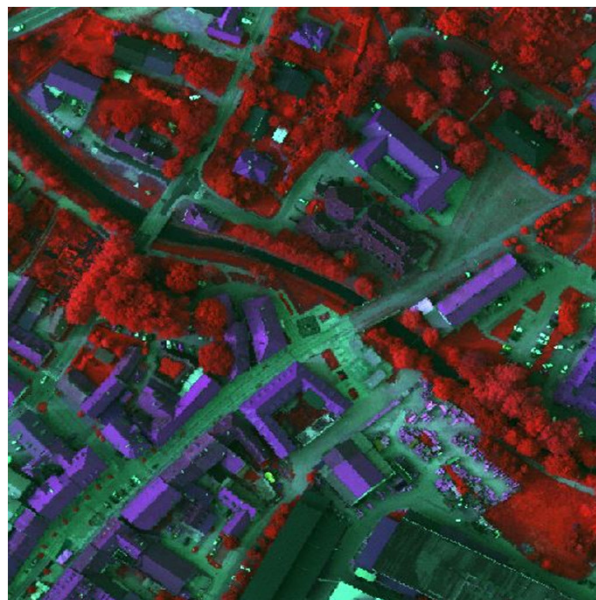


Zračno slikanje

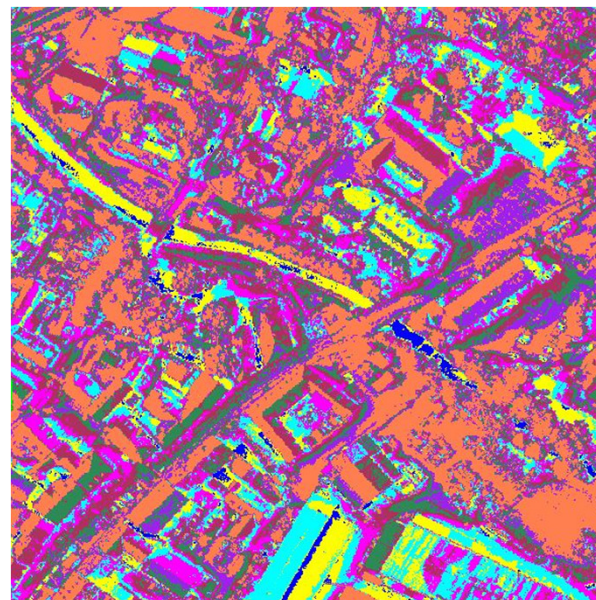
Kombinacije
spektralnih
pasov za
ločevanje
drevesnih vrst



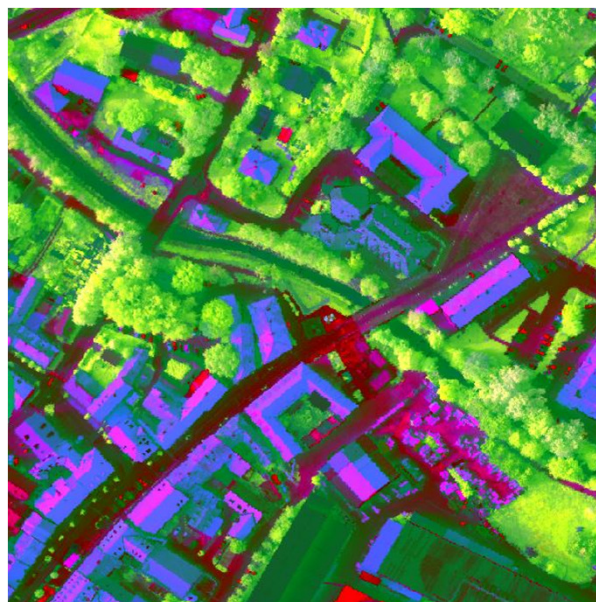
Kombinacija
spektralnih
pasov



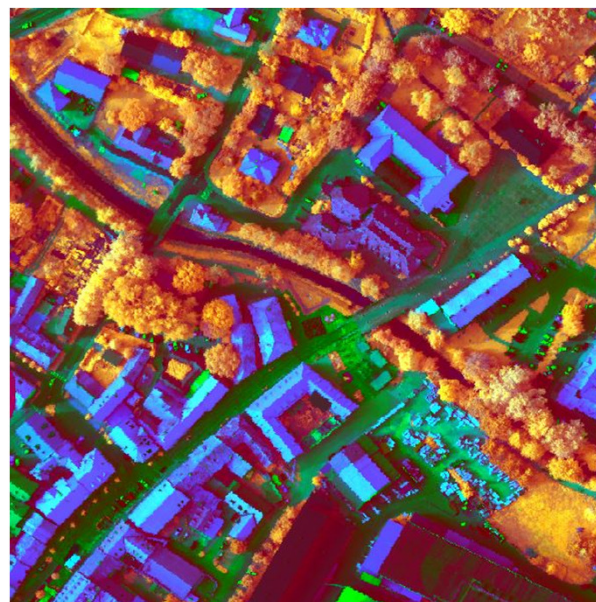
Nenadzorovana
klasifikacija



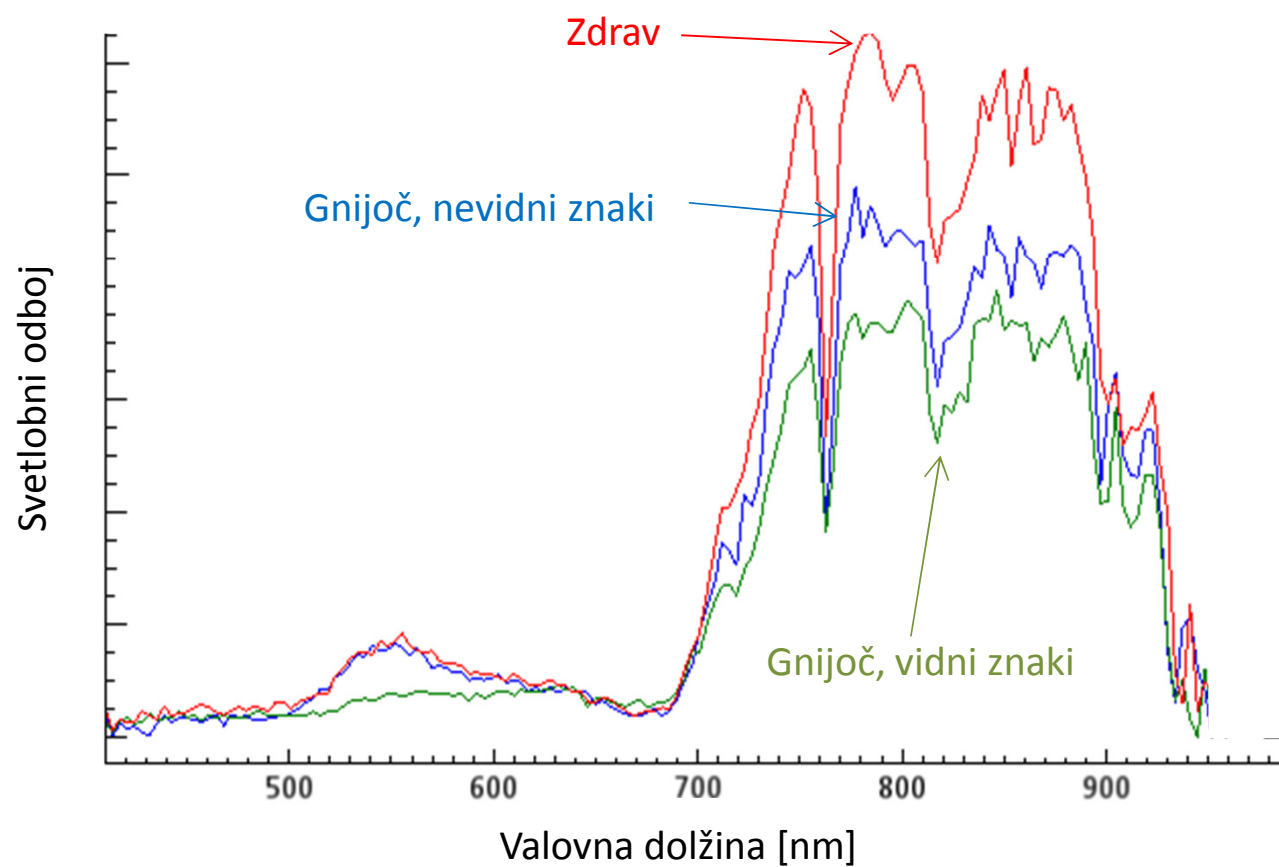
PCA
komponenta 1



PCA
komponenta 2



Določanje gnilobe grozdja



HIPERSPEKTRALNO SLIKANJE

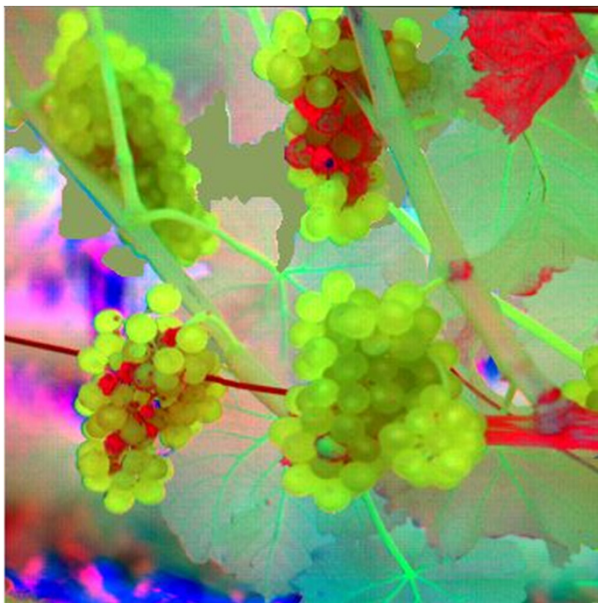
SWIR posnetek



SWIR posnetek
+
filter



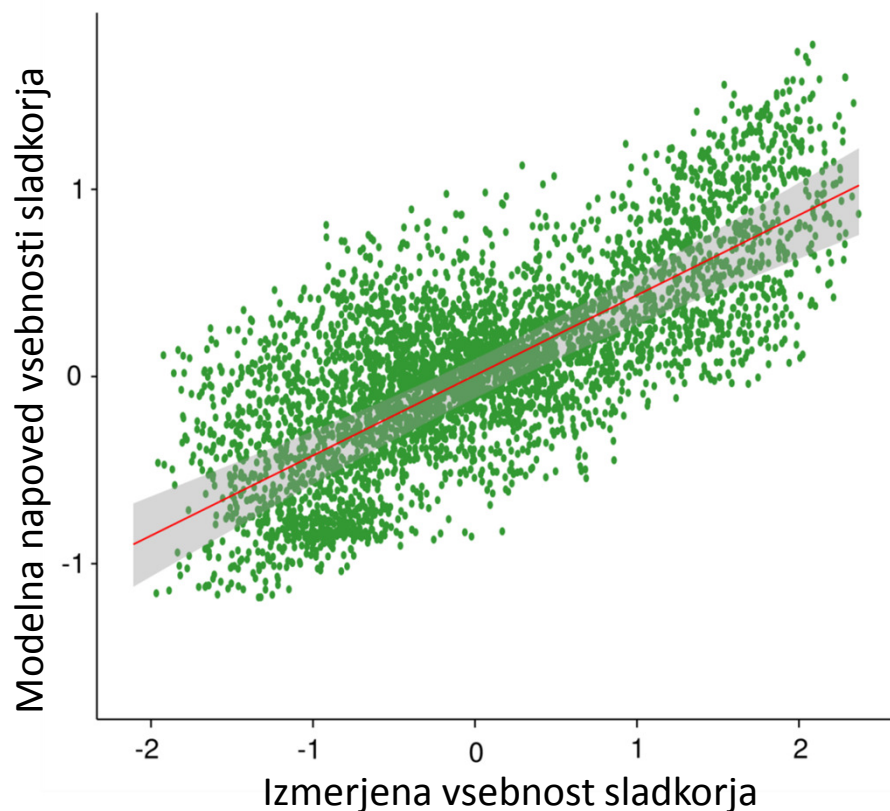
SWIR posnetek
+
PCA
komponenta 1



SWIR posnetek
+
PCA
komponenta 2

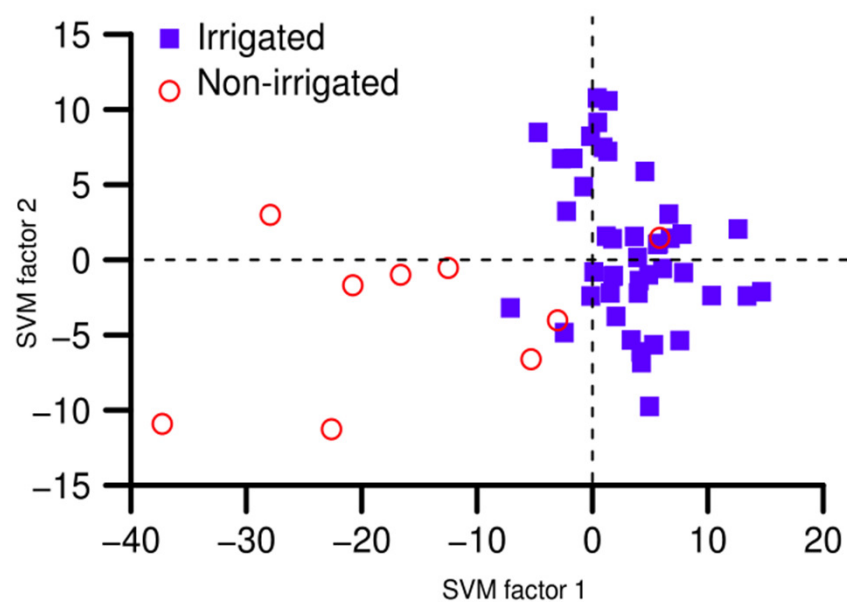


Kemometrija – vsebnost sladkorja v grozdju

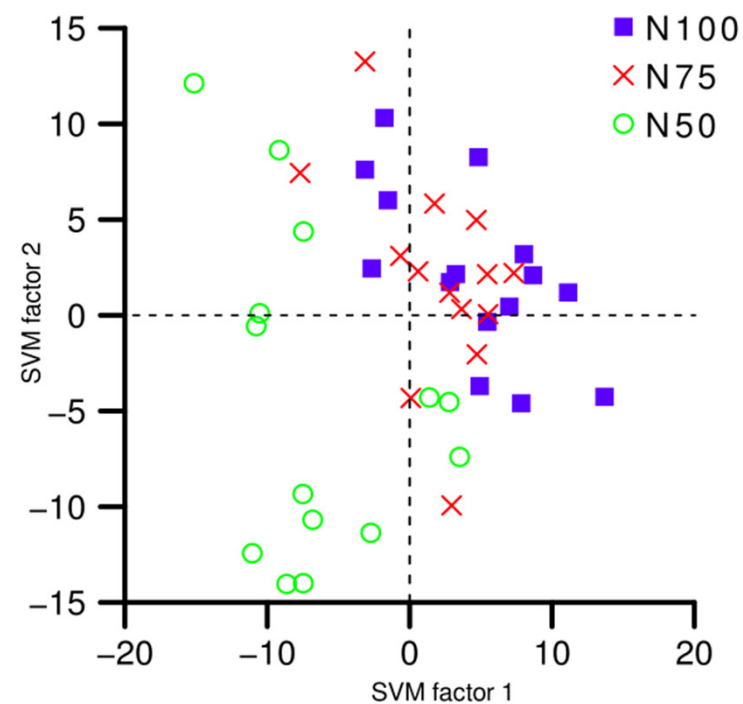


Suša v vinogradu

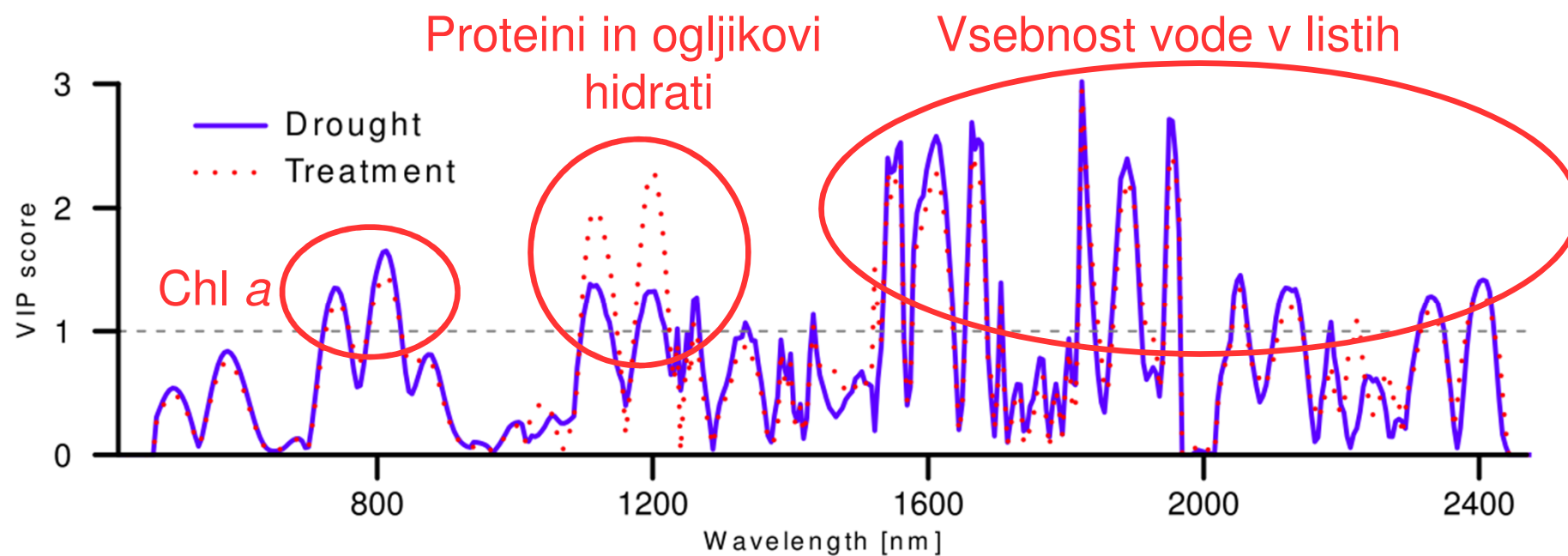
Določanje rastlin v sušnem stresu



Določanje jakosti sušnega stresa

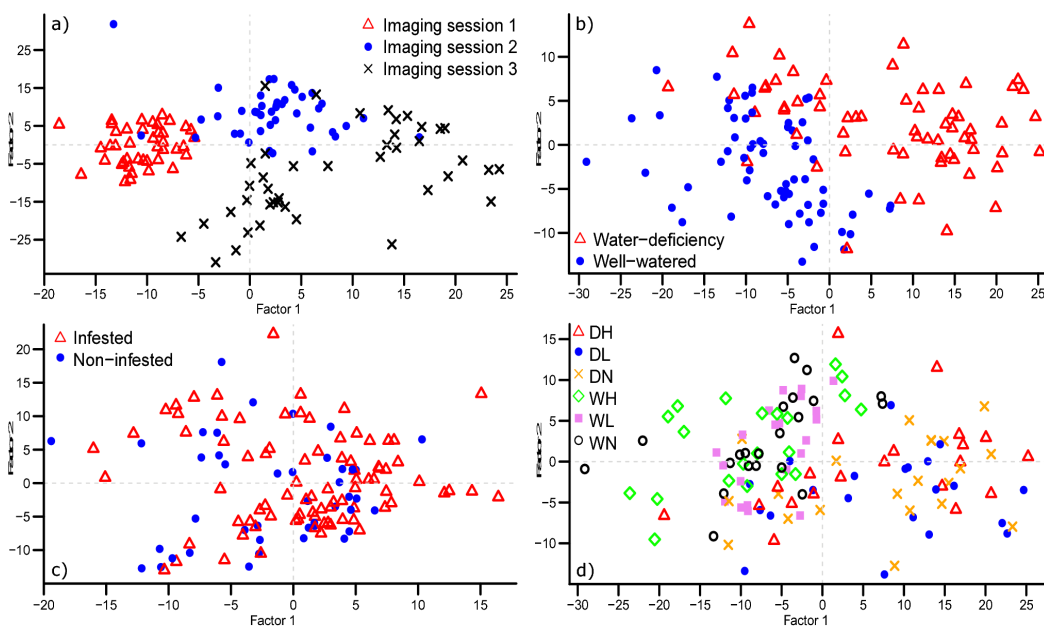


Suša v vinogradu – relevantne spektralne regije



Infestacija ogorčic pri paradižnikih

Določanje starosti rastlin, sušnega stresa, napada ogorčic in poskusnega tretmaja



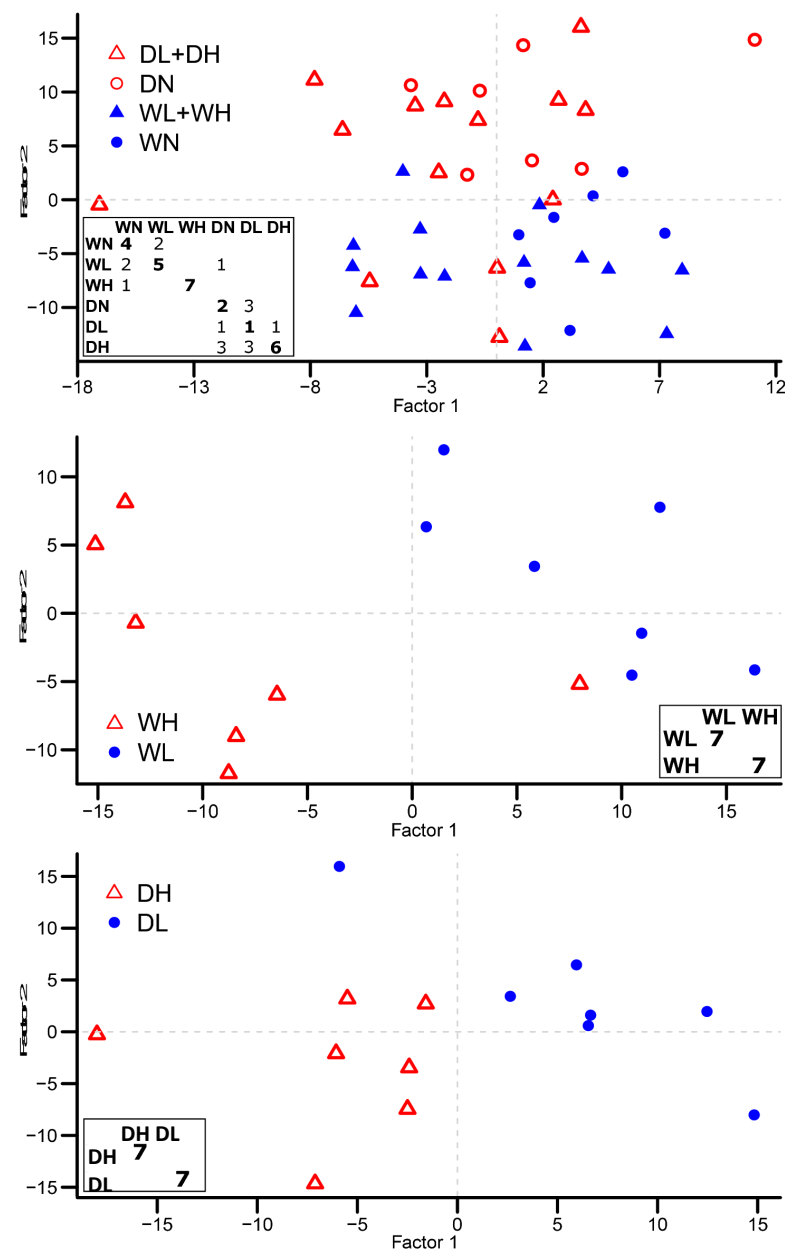
a) IS1 IS2 IS3
IS1 42
IS2 42
IS3 42

b) WW WD
WW 61 3
WD 2 60

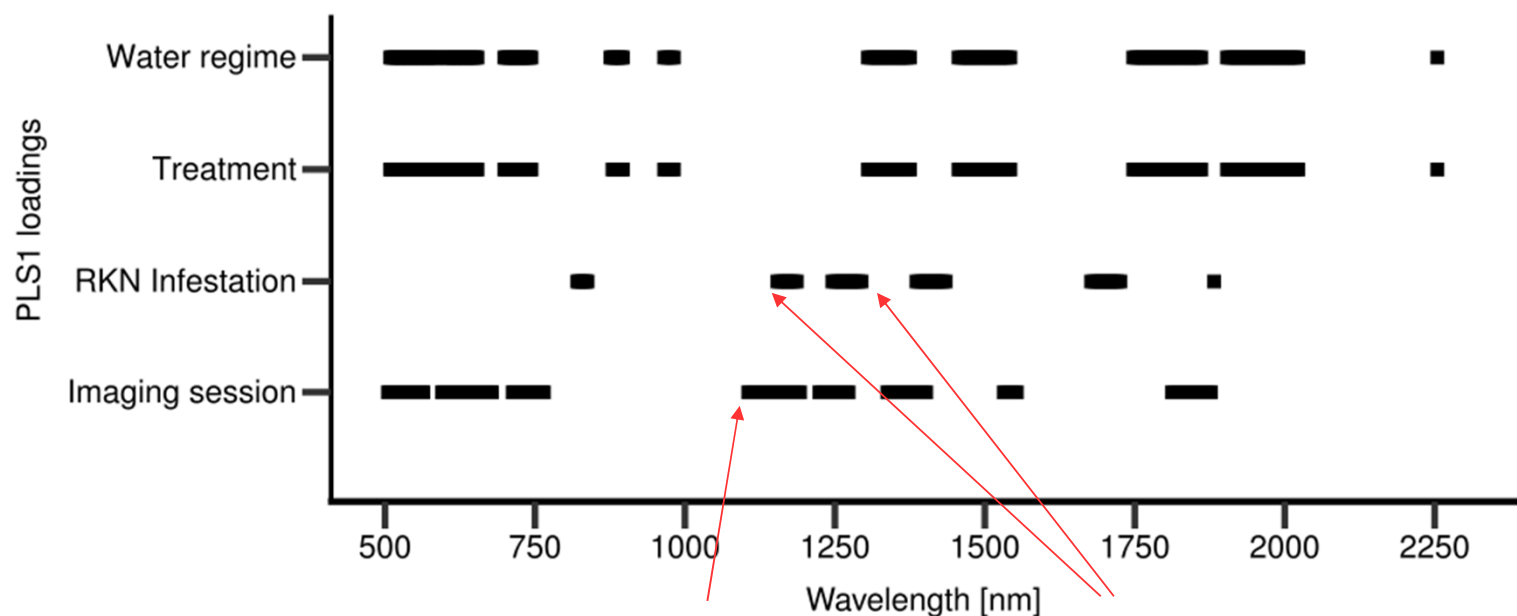
c) WN WL+WH
WN 31 2
WL+WH 11 82

d) WN WL WH DN DL DH
WN 9 6 2 1 2
WL 7 12 1 1
WH 4 3 19 2 2 2
DN 8 6 12
DL 1 1 3 3
DH 9 9 1

Določanje jakosti infestacije

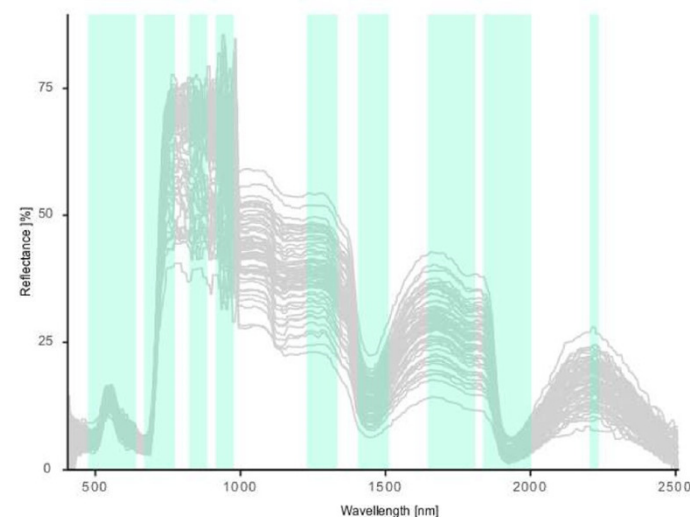


Infestacija ogorčic pri paradižnikih – relevantne spektralne regije



N-H vez pri
proteinih

C-H vez pri ogljikovih
hidratih in proteinih



HIPERSPEKTRALNO SLIKANJE

Avtorja:

- znan. sod. dr. Uroš Žibrat
- mag. Matej Knapič

Oddelek za varstvo rastlin, T: 01 280 52 04

Kmetijski inštitut Slovenije, Hacquetova ulica 17, SI-1000 Ljubljana, T: 01 280 52 62, E: info@kis.si, www.kis.si

