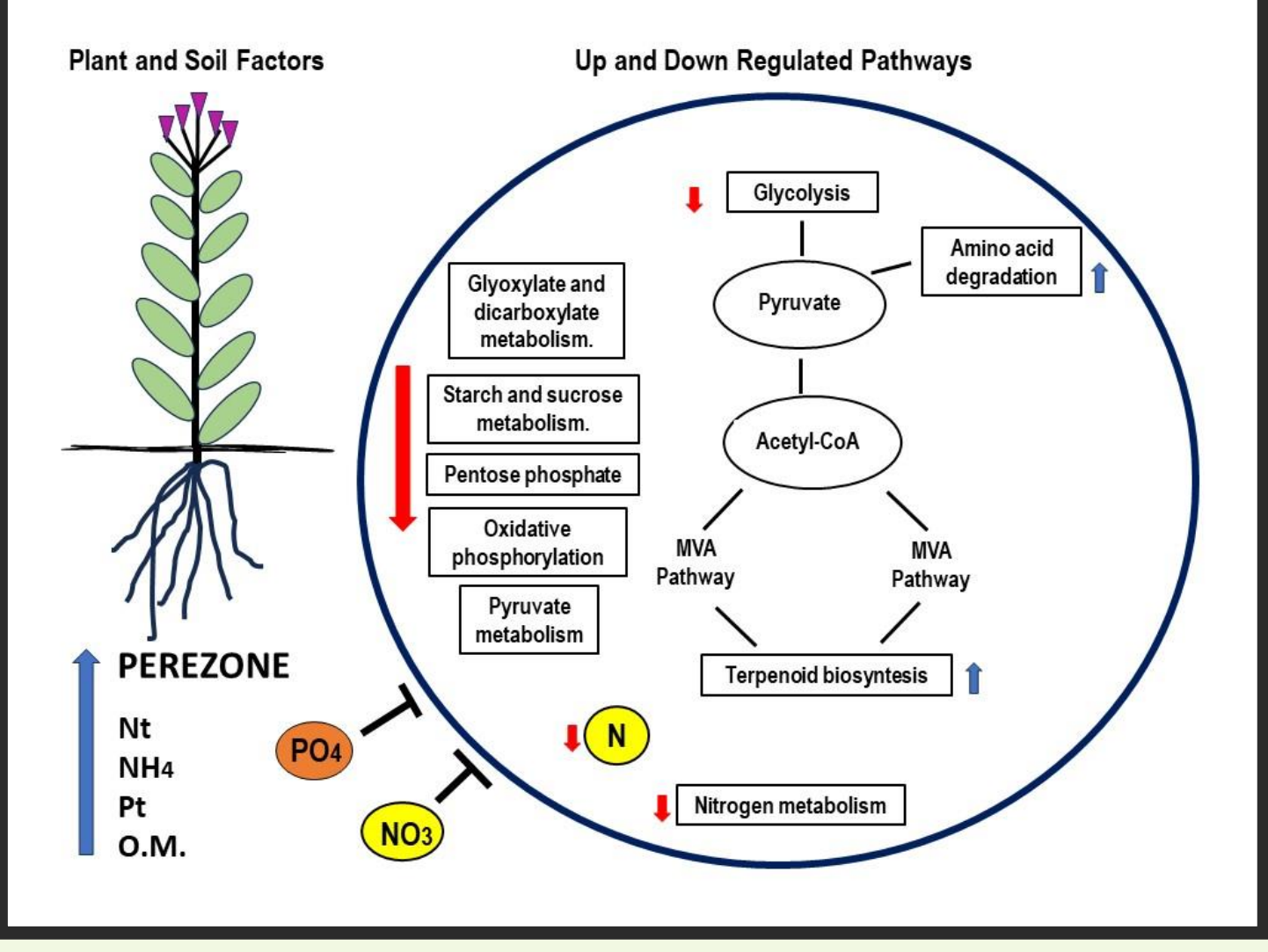


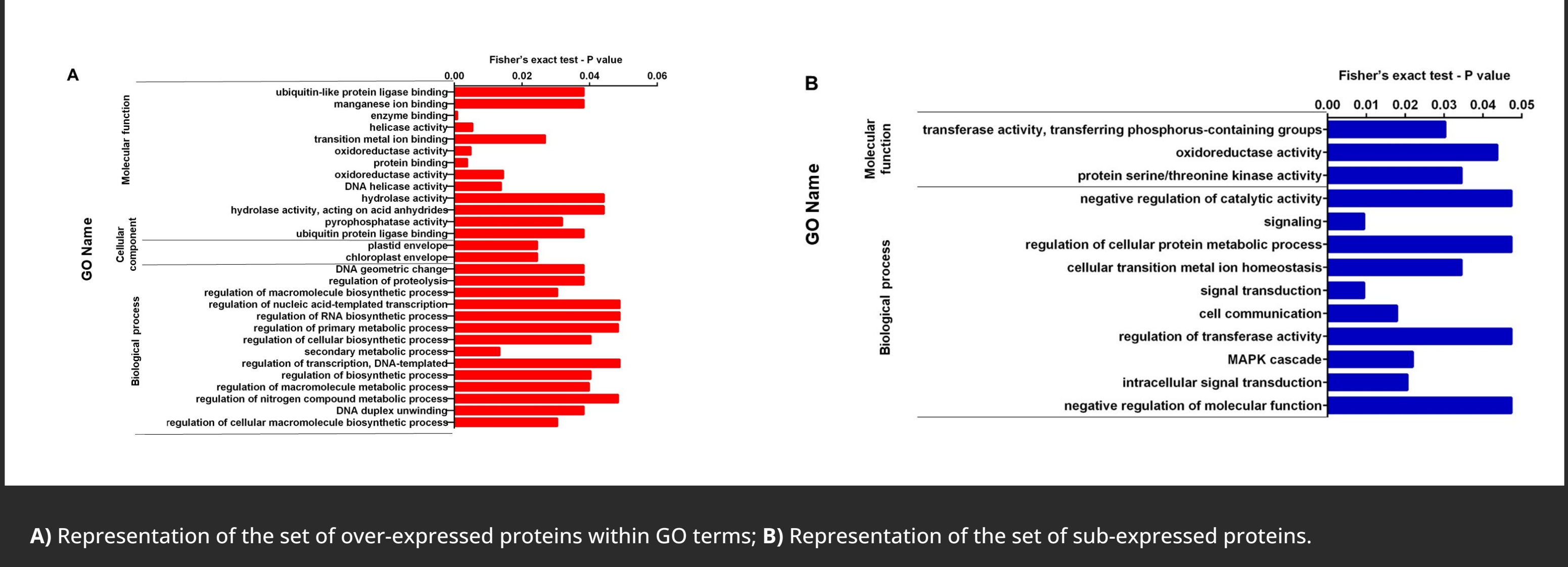
High variability of perezone content in rhizomes of *Acourtia cordata* wild plants, environmental factors related, and proteomic analysis



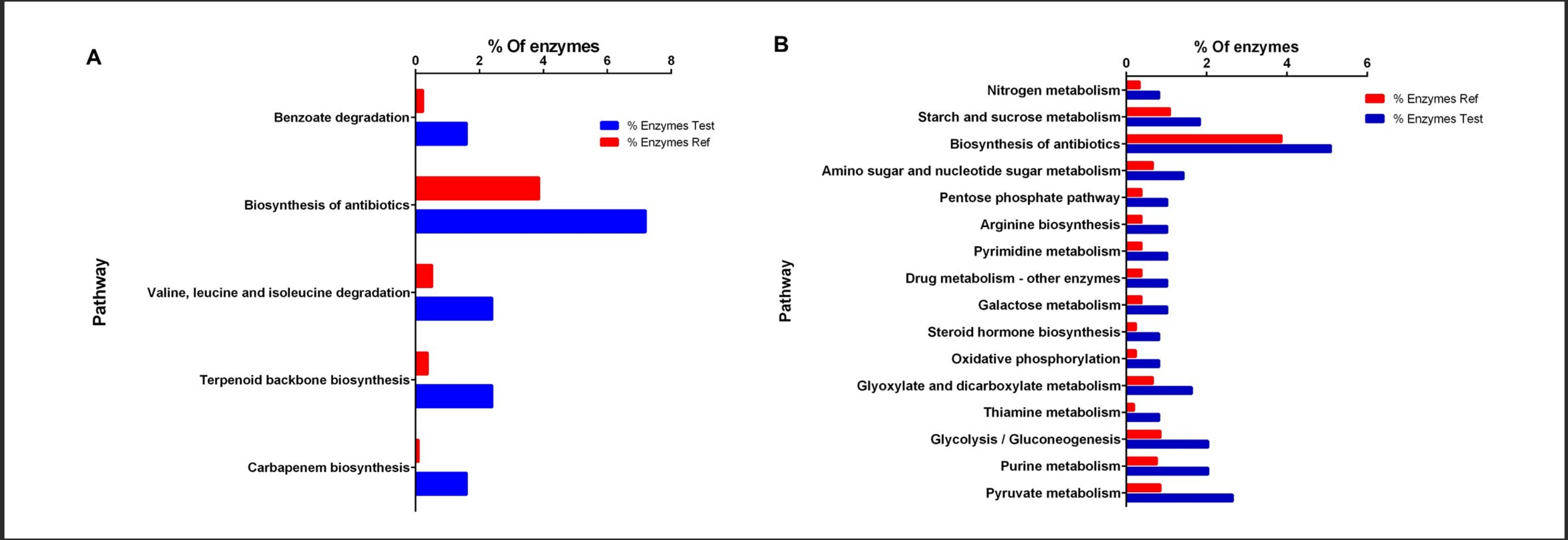
Rhizomes of *Acourtia cordata* plants produce and accumulate the sesquiterpene quinone known as perezone. Our results show high variability in the content of perezone between wild-type plants, related to a direct relationship with some edaphic factors like organic matter, total nitrogen, ammonia, and total phosphorous.



The proteomic analysis of such rhizomes shows the pathways and enzymes related to high and low perezone producers. Up-regulated proteins are related to terpenoid biosynthesis and amino acid degradation, whereas down-regulated proteins are related to glycolysis, glyoxylate, and dicarboxylate metabolism, among others.



A) Representation of the set of over-expressed proteins within GO terms; B) Representation of the set of sub-expressed proteins.



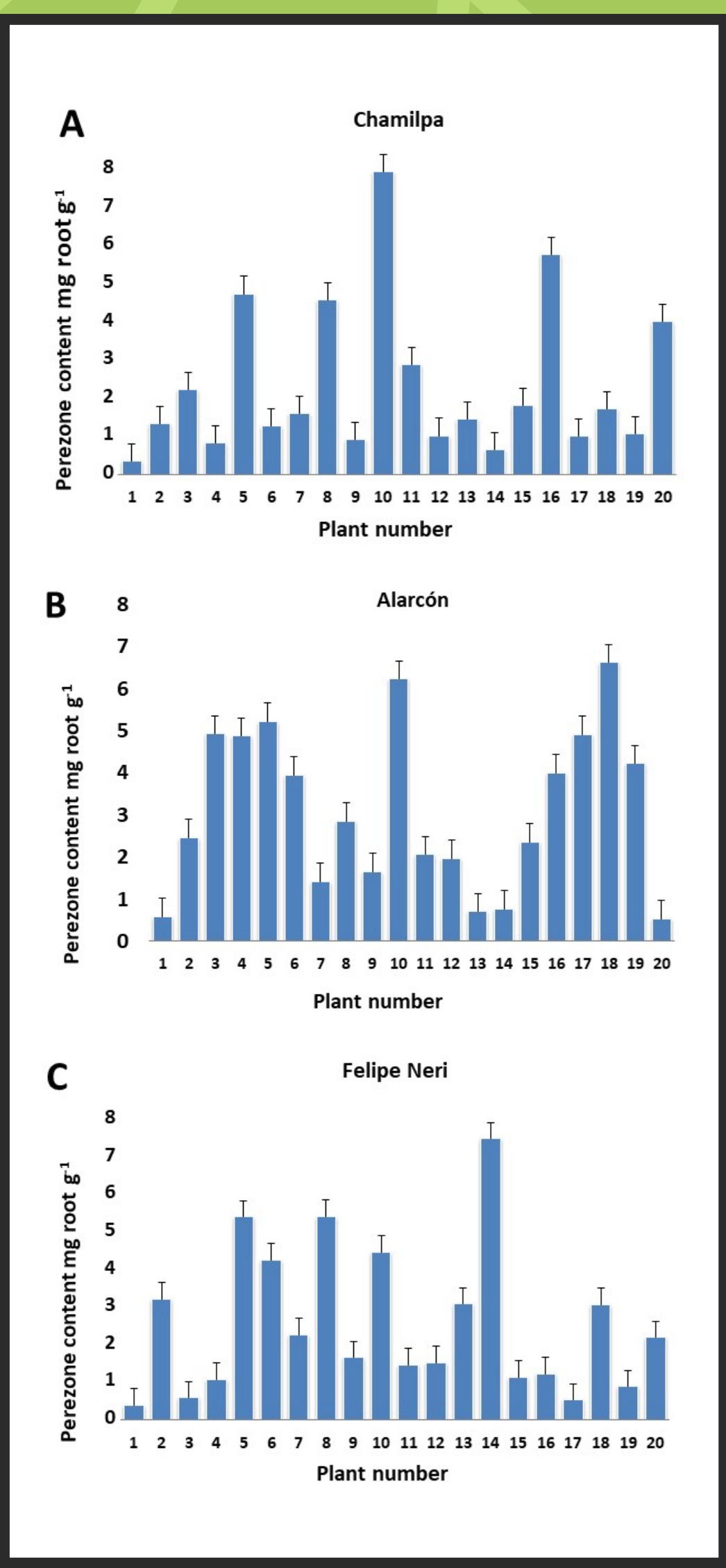
Enrichment analysis of KEGG pathways: A) Over-expressed proteins comparing high and low perezone producers; B) Sub-expressed proteins.

Highlights

- There is a high variation in perezone content between rhizomes of wild-type plants.
- Using the proteomic approach, differentially expressed proteins were detected in wild plant rhizomes and the profiles of high vs. low perezone-producing plants were compared.
- Edaphic factors could be related to the perezone content in the rhizomes of wild *A. cordata* plants. All these aspects are discussed in the article.

	SS	F _{1,46}	P	% variation
Soil Parameter				
pH	2.17	1.2	n.s.	
O.M.	17.55	9.75	**	21.2
NH ₄	1.64	0.91	n.s.	
NO ₃	1.08	0.60	n.s.	
PO ₄	0.39	0.22	n.s.	
N _t	6.83	3.79	*	8.3
P _t	28.71	15.96	***	34.7
Macromorphological character				
Basal diameter	0.47	0.26	n.s.	
Number of branches	0.42	0.23	n.s.	
Total individual height	0.60	0.33	n.s.	
Shrub cover	0.01	0.00	n.s.	
Locality				
Study site	2.34	0.65	n.s.	

n.s.= not significant differences, * = p < 0.05; ** = p < 0.01 *** = p < 0.005



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