



79th



International
Scientific
Conference of
the University
of Latvia

Do elderberry and elderflower extracts inhibit binding of SARS-CoV2 S1 protein receptor binding domain to cellular receptor ACE2 *in vitro*?

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Summary

Background:

- *S. nigra* – medicinal tree
- Flowers – *Sambuci nigrae flos* – included in *European Pharmacopoeia*
- Reported antiviral activity against:
 - influenza (3 clinical studies + *in vitro*)
 - Human coronavirus HCoV-NL63 (*in vitro*)
 - Infectious bronchitis virus (chicken coronavirus) (*in vitro*)



Aim:

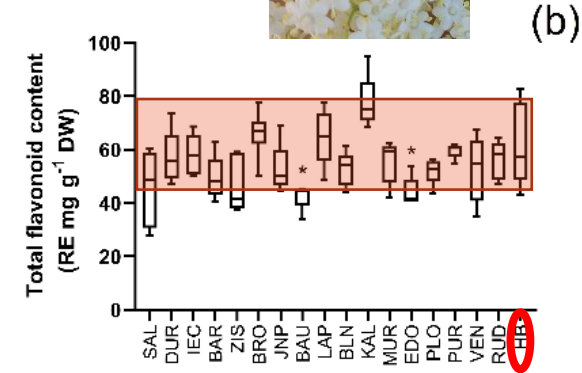
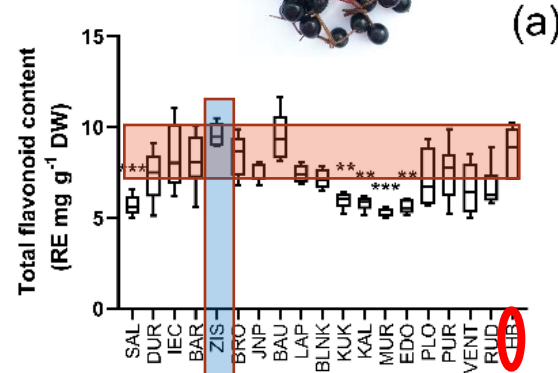
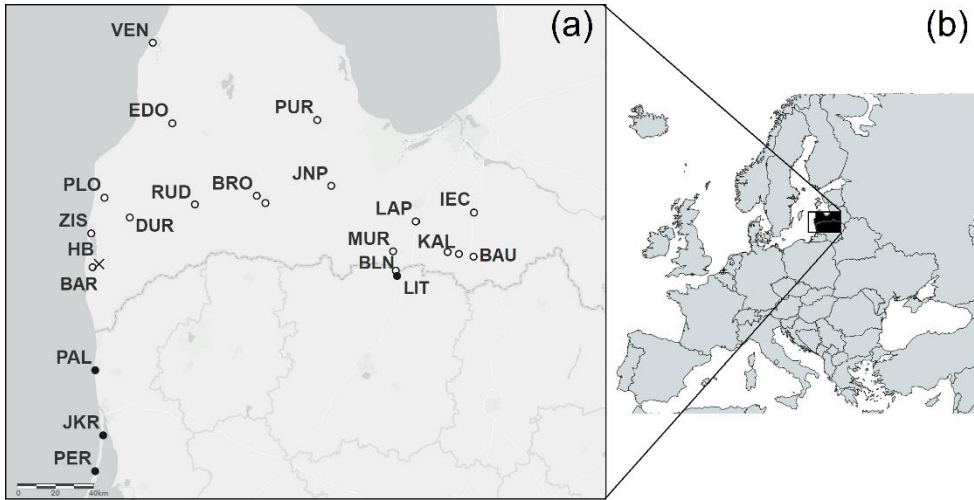
Does *S. nigra* berry and flower extracts inhibit SARS-CoV2 S1 RBD and ACE2 binding *in vitro*?

Methods:

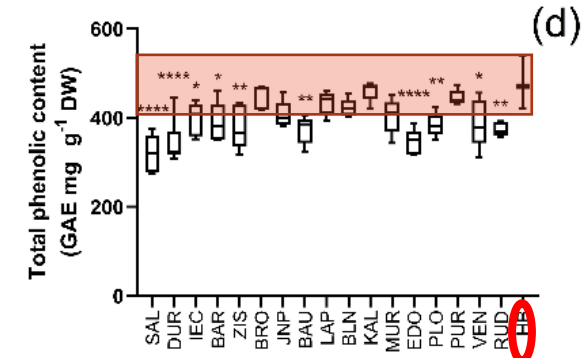
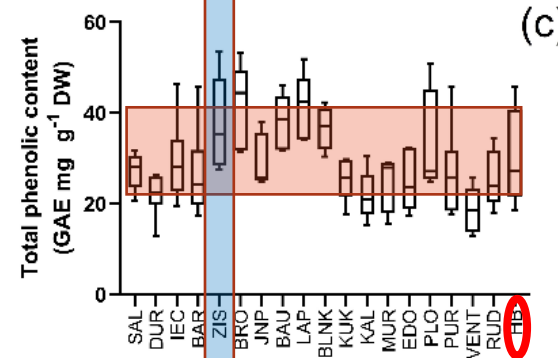
- Spectrophotometric microplate assays– TPC, ARA, TFC
- ELISA (COVID-19 Spike-ACE2 binding assay kit CoV-SACE2-1, RayBiotech Inc)



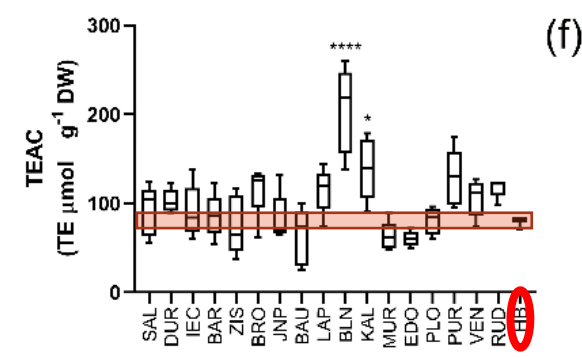
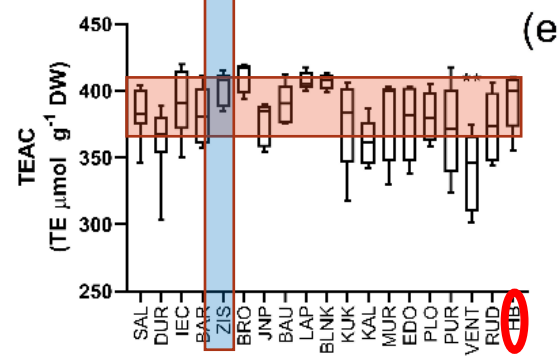
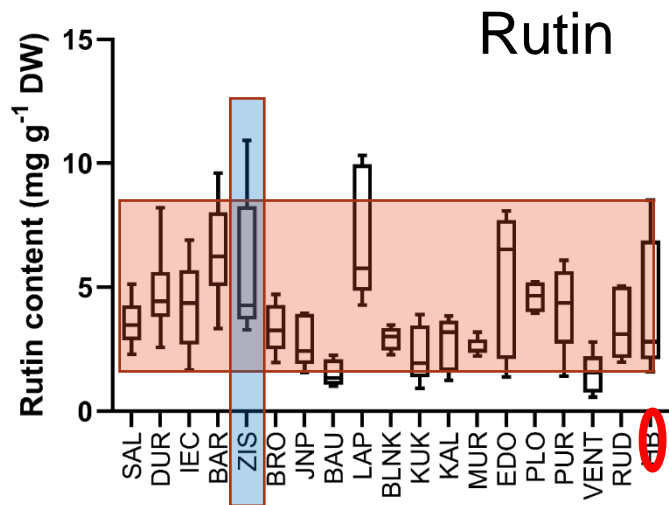
Results I



Flavonoids



Total phenolics



Anti-radical activity



Results II

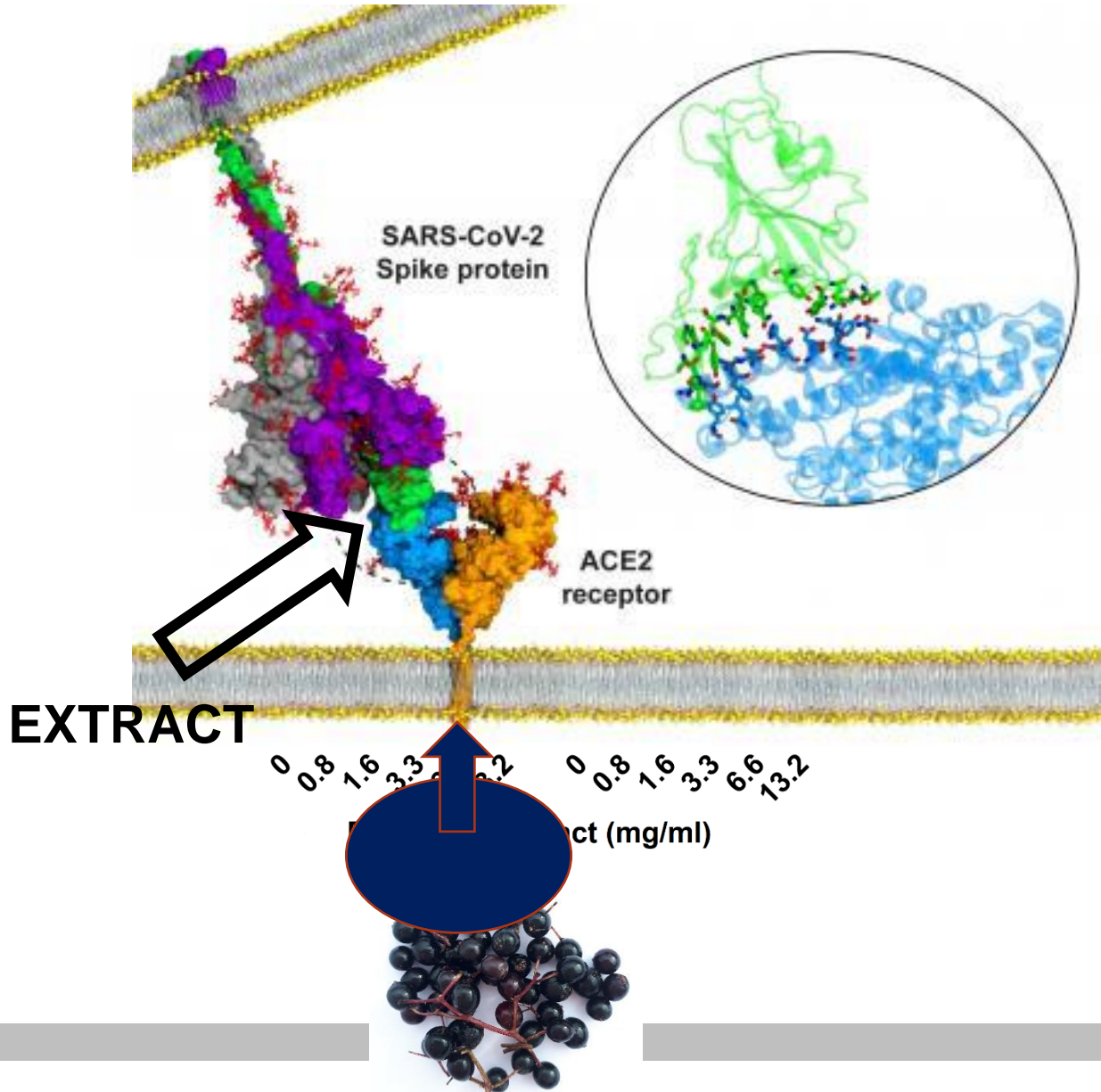
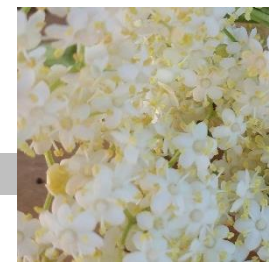
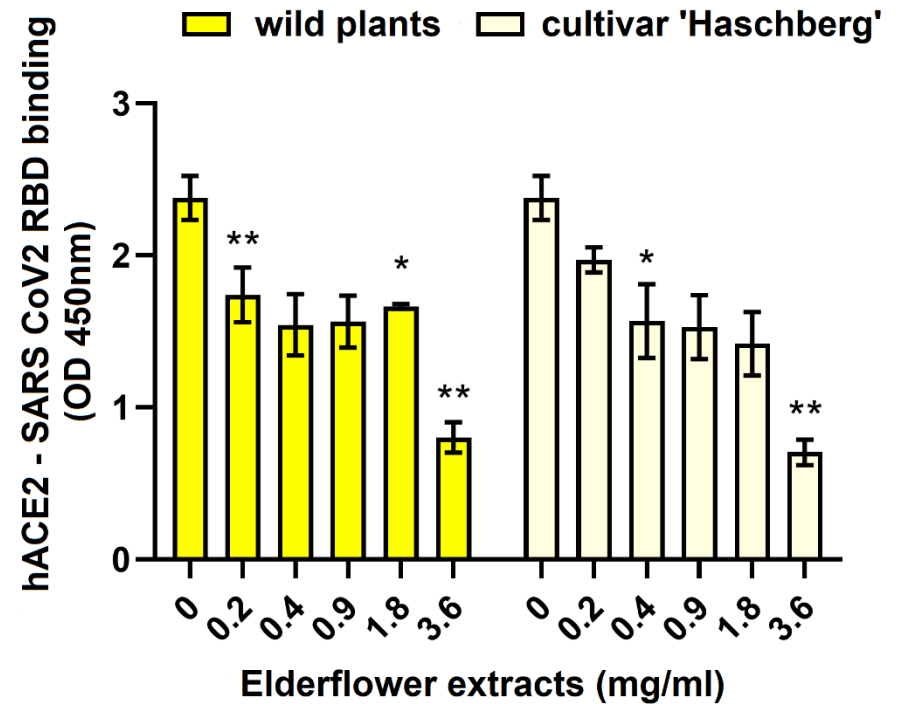


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Conclusions

- TPC, TFC and ARA values of wild *S. nigra* populations from Latvia did not exceed corresponding values of widely-grown *S. nigra* cultivar ‘Haschberg’,
- Wild elderberry and elderflower extracts exhibited significant concentration dependent inhibitory effect on SARS-CoV2 S1 protein RBD binding to ACE2 *in vitro*,
- Results of the study serve as validation for further research of *S. nigra* anti-SARS-CoV2 applications.

Funding

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