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Introduction

European plum (*Prunus domestica* L.) is a very adaptable fruit species with a large spreading area, but it is mostly grown under the temperate climatic conditions. Plum production has a very long tradition in Norway, which dates back from the Middle Ages. In addition, plum is the second most produced fruit in Norway.¹

European plum fruits are a healthy food rich in nutrients and phenolics. They are a good source of flavonoids and phenolic acids, as well as vitamins and carotenoids.²



Figure 1. Dried plum sample

Materials and methods

- Six plum cultivars (Opal, Mallard, Reeves, Jubileum, Avalon and Valon) grown in Norway were used in this study.
- In total, 56 samples of plum fruits were gathered from two locations and dried after harvest.
- The total phenolic content and antioxidant capacity were investigated by spectrophotometric tests (Folin-Ciocalteu test and DPPH[•] test, respectively).
- The content of individual phenolic compounds was analyzed by HPLC.



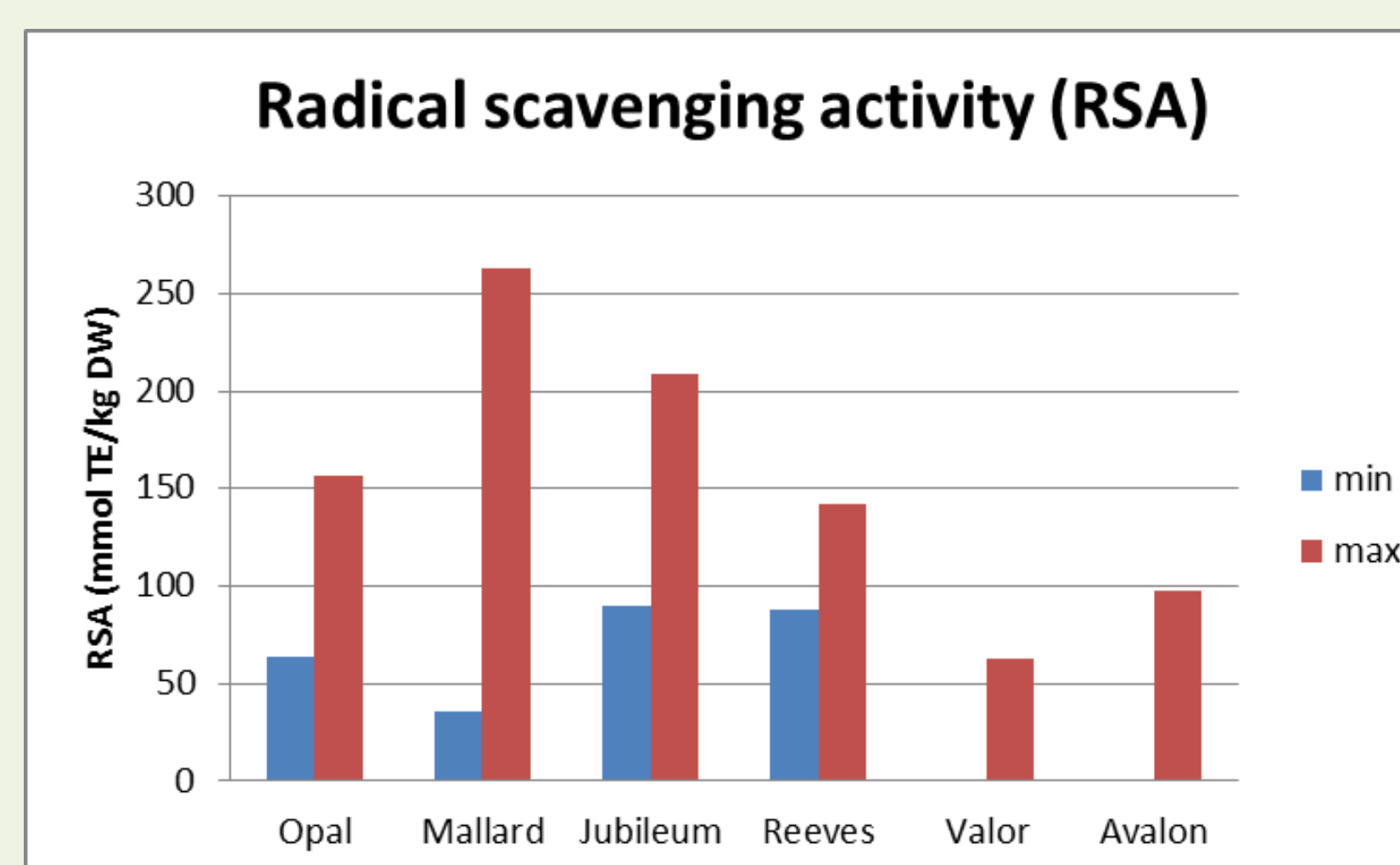
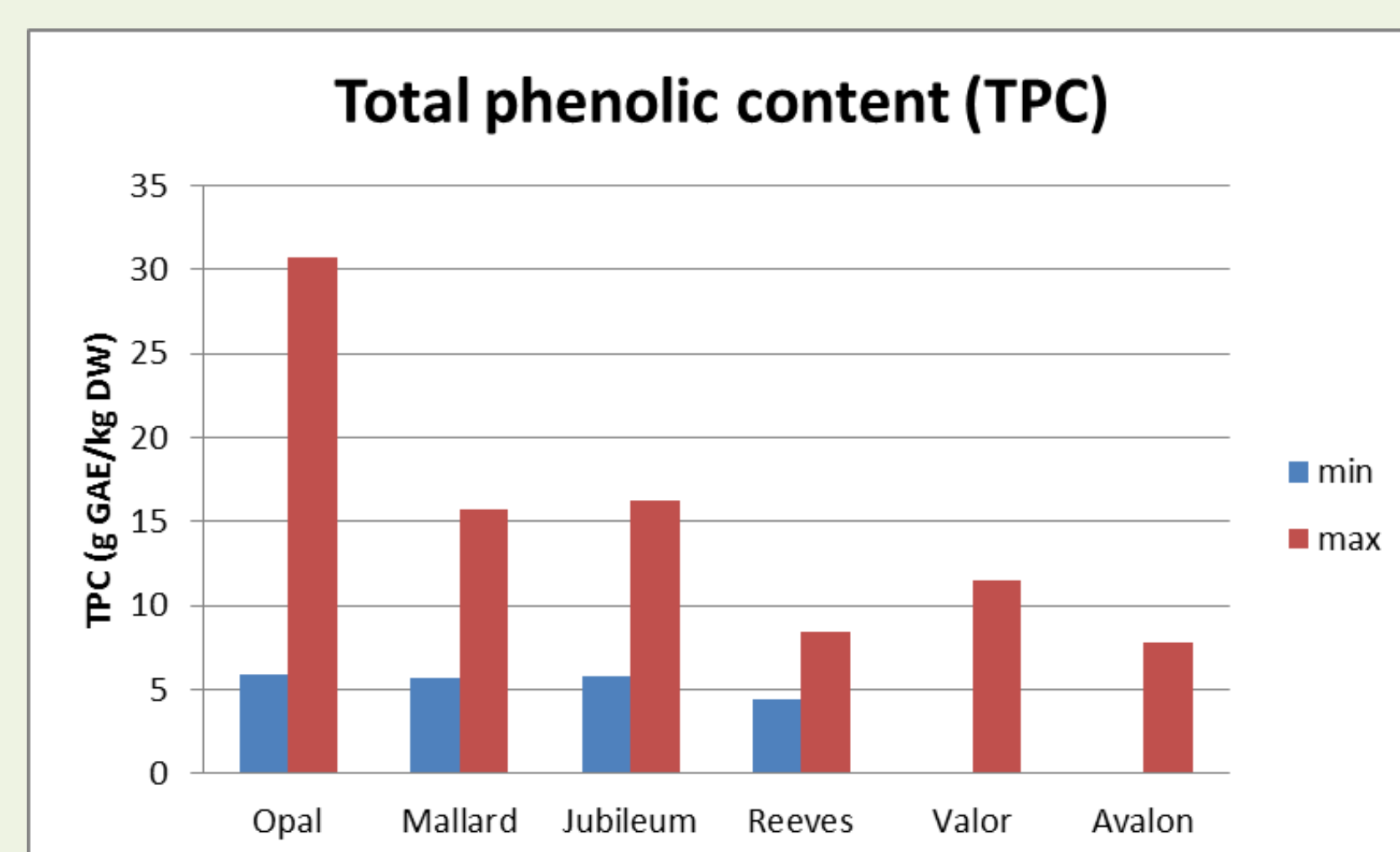
Figure 2. Plum extracts

Results and discussion

- The total phenolic content was in the range 4.43–30.75 g GAE/kg dry weight (gallic acid equivalents)
- The antioxidant capacity was in the range 35.42–262.91 mmol TE/kg dry weight (Trolox equivalents).
- Among the individual phenolic compounds, 3-O-caffeoylquinic acid is the most abundant phenolic compound, following by 5-O-caffeoylquinic acid, while caffeic acid, rutin, p-coumaric acid and quercetin 3-O-glucoside are much less abundant. The cultivar Valor was the most abundant in 3-O-caffeoylquinic acid, 5-O-caffeoylquinic acid, rutin and quercetin 3-O-glucoside.

Conclusion

The results show that all the samples were rich in phenolic compounds and showed high antioxidant capacity. There was large variability in total phenolic content, antioxidant capacity and the content of individual phenolic compounds between the species of the same cultivar and between different cultivars.



References

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Acknowledgments

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Figure 2. Total phenolic content (left) and antioxidant capacity (radical scavenging activity, right) of plum extracts. *min-samples from each cultivar with the lowest value (blue bars); max-samples from each cultivar with the highest value (red bars).

**Cultivars Valon and Avalon had only one sample.