

POLYPHENOLS CONTENT IN ROSEHIP *ROSA RUGOSA* THUNB. AND *ROSA CANINA* L. DEPENDENCE ON THE RIPENING STAGE

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Introduction

Different harvesting time can largely influence the content of bioactive compounds in different variety rosehips.

Materials and Methods

The field experiment was carried out in an organic farm in Pakruojis district, Lithuania.

The aim of this study was to determine the effect of ripening stage on polyphenol content of two different rosehip flesh species *R. rugosa* and *R. canina*.

The fruits were harvested five times in season. The first stage (H-1) was performed when the fruit color changed slightly from green to yellow, pink or red no less than 10% of the surface. The second stage (H-2) was performed when the fruit color changed from green to tarnish – yellow, pink or red no less than 30% of the surface. The third stage (H-3) was performed when the fruit color changed from green to light orange or red or a combination thereof no less than 60% of the surface. The fourth stage (H-4) was performed when the fruit became pinkish or orange depending on the species. The fifth stage (H-5) was performed when the fruit surface was red.

Polyphenols were determined using HPLC system by the method described by Hallmann (2012).



R. rugosa

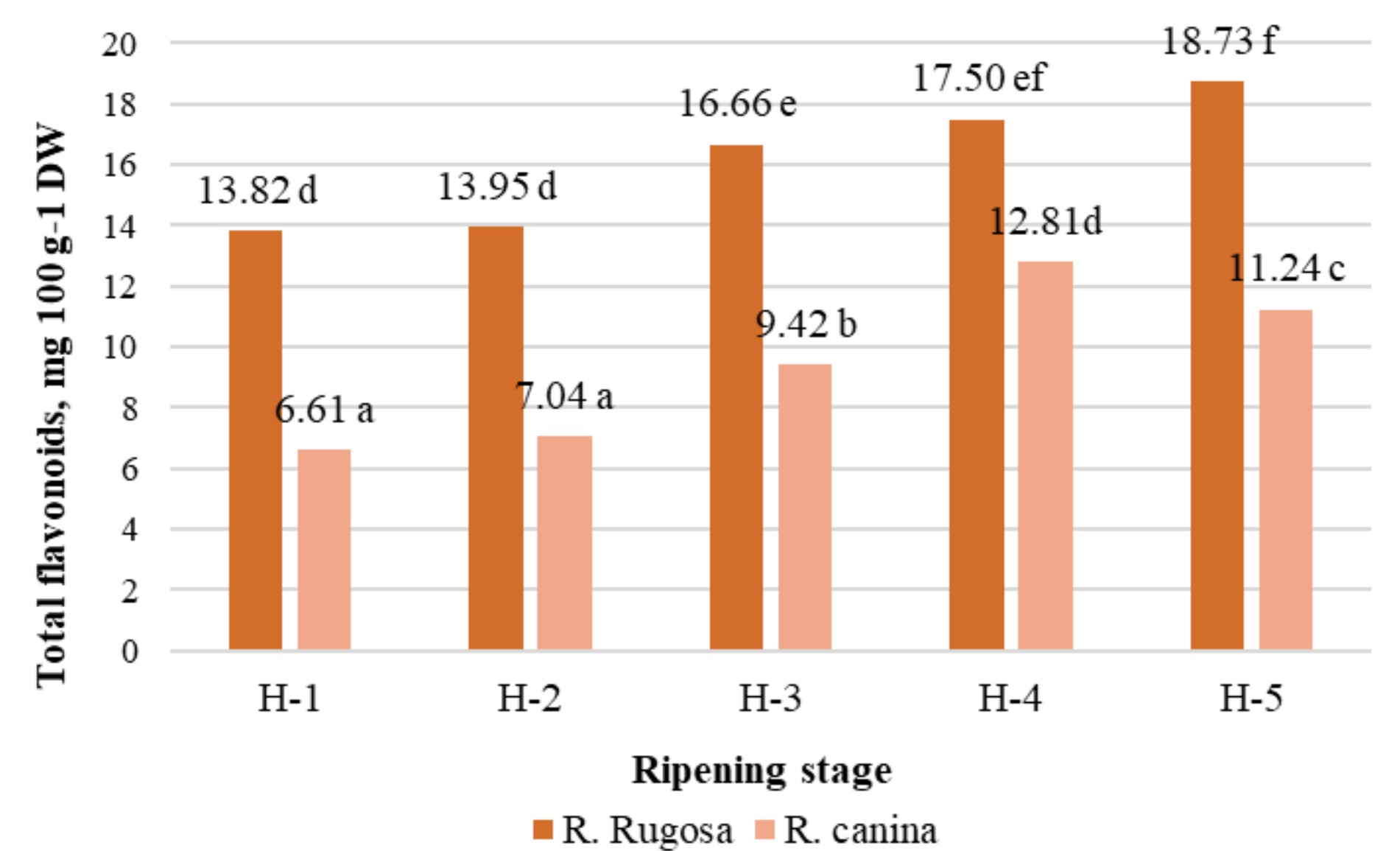


R. canina

Figure 1. Rosehip species

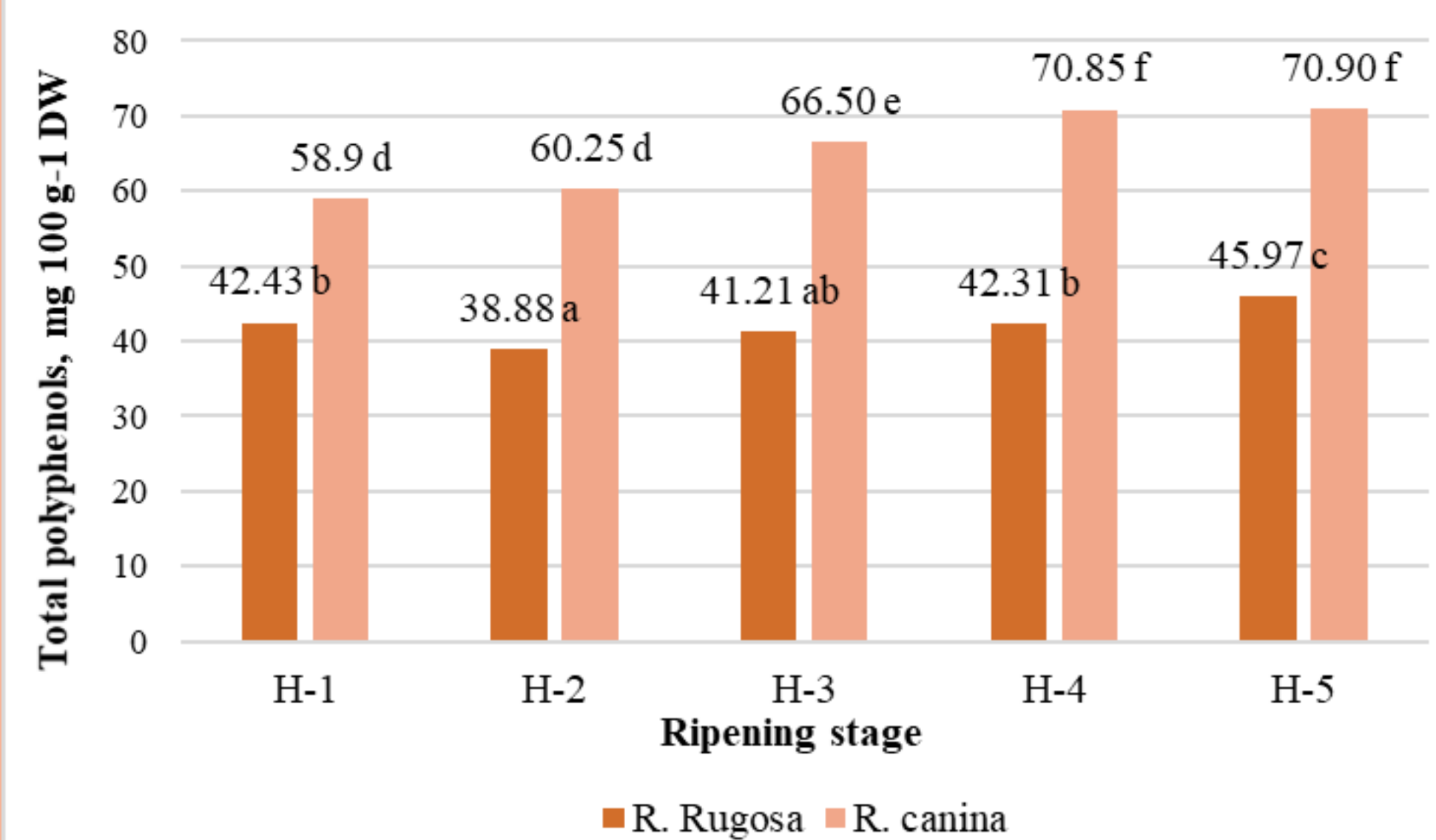
Results and Discussion

The results demonstrated that the significantly highest contents of total flavonoids were identified in the *R. rugosa* species and the highest amount was in fully ripe fruits (H-5) (18.73 mg g⁻¹ DW). The total polyphenols and total phenolic acids contents in fruits of *R. canina* were significantly higher than in the fruits of *R. rugosa* and the highest concentration was determined in the fifth harvesting stage (H-5) (respectively 70.90 and 59.60 mg g⁻¹ DW).



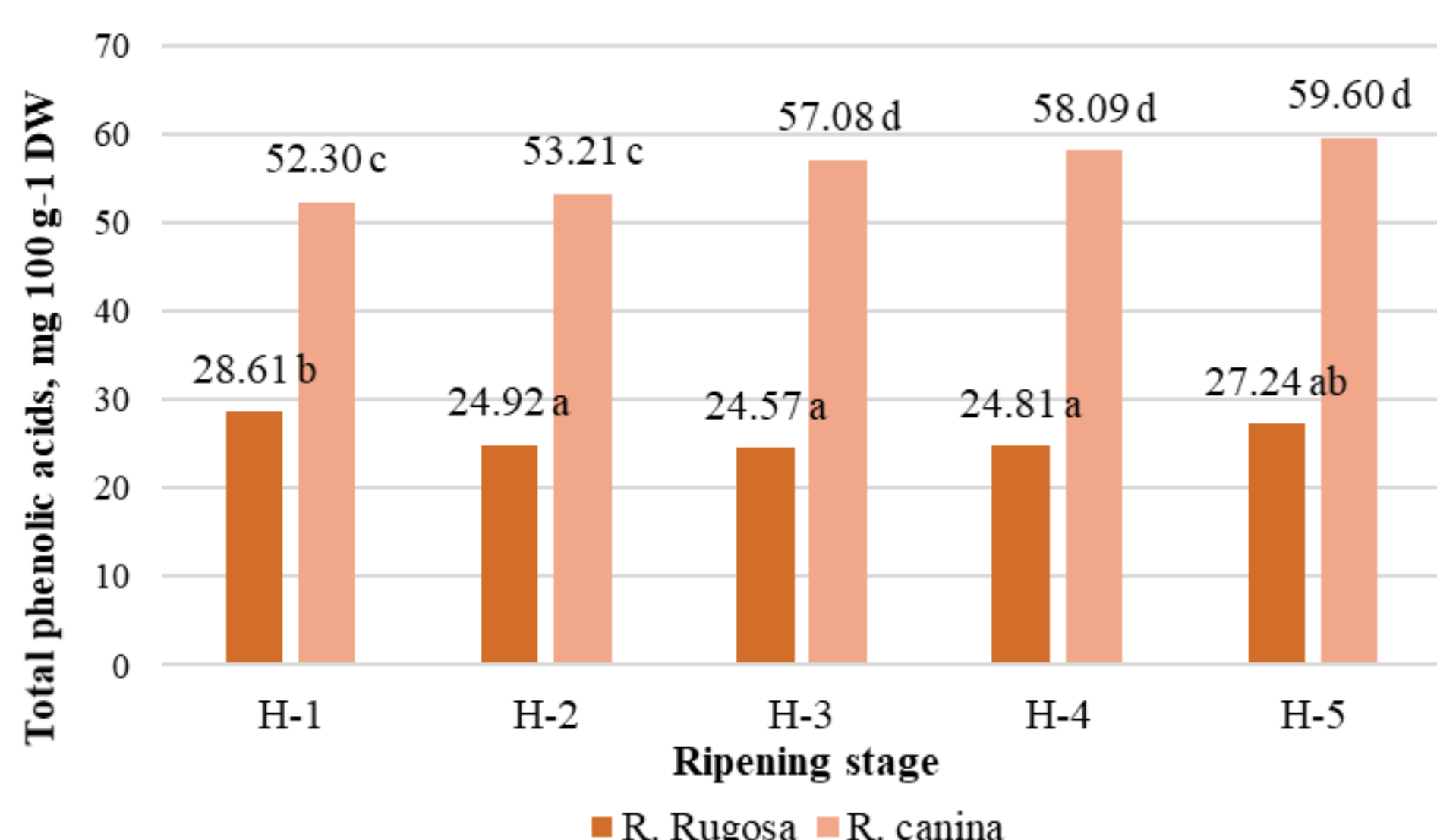
Note: The differences between the means of samples marked by not the same letter (a, b, c) are significant at p≤0.05.

Figure 3. Amount of the total flavonoids, mg 100 g⁻¹ DW



Note: The differences between the means of samples marked by not the same letter (a, b, c) are significant at p≤0.05.

Figure 4. Amount of the total polyphenols, mg 100 g⁻¹ DW



Note: The differences between the means of samples marked by not the same letter (a, b, c) are significant at p≤0.05.

Figure 2. Amount of the total phenolic acids, mg 100 g⁻¹ DW

Conclusions

The total amount of polyphenols, flavonoids and phenolic acids showed that the main factor determining the differences in accumulation of biologically active compounds was the species of rosehips and ripening stage.