

# Relationship between Xanthohumol, Polyphenols and Flavonoids Content in Hop Leaves with Regard to Vegetation Period



Eva Ťrgeov, Eudovt Polvka

Department of Biotechnologies, Faculty of Natural Sciences, University of SS Cyril and Methodius, Nm. J. Herdu 2, SK-917 01 Trnava, Slovak Republic;  
e-mail: eva.urgeova@ucm.sk

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The cultivars of *Humulus lupulus* (L.) are characterised by numerous biological effects, including antimicrobial and antioxidant properties which are induced by the activity of polyphenols and flavonoids.

The substances were identified by standard analytical spectrophotometric methods and HPLC. We identified the concentration ranges of polyphenols, flavonoids, and xanthohumol in cultivars of hop during vegetal periods.

The concentration of secondary metabolites, phenol substances, and flavonoids depended mainly on the vegetal period. From June to September, their contents in leaves significantly decreased.

The influence of climatic conditions on the contents of secondary metabolites of hop leaves was verified. The contents of these constituents were different in identical cultivars, compared to the years 2007 and 2008.

Tab. 1 Polyphenols content in hop leaves during the vegetal period

Cultivars	Polyphenols [mg g <sup>-1</sup> DM]	
	6/2008	9/2008
<i>K-31</i>	6.99±0.14	4.53±0.12
<i>K-72</i>	12.48±0.36	3.03±0.09
<i>Bor</i>	14.34±0.15	3.77±0.20
<i>Sldek</i>	12.32±0.22	3.3±0.12
<i>Zlatan</i>	13.38±0.14	3.57±0.11
<i>Premiant</i>	9.5±0.33	4.68±0.06

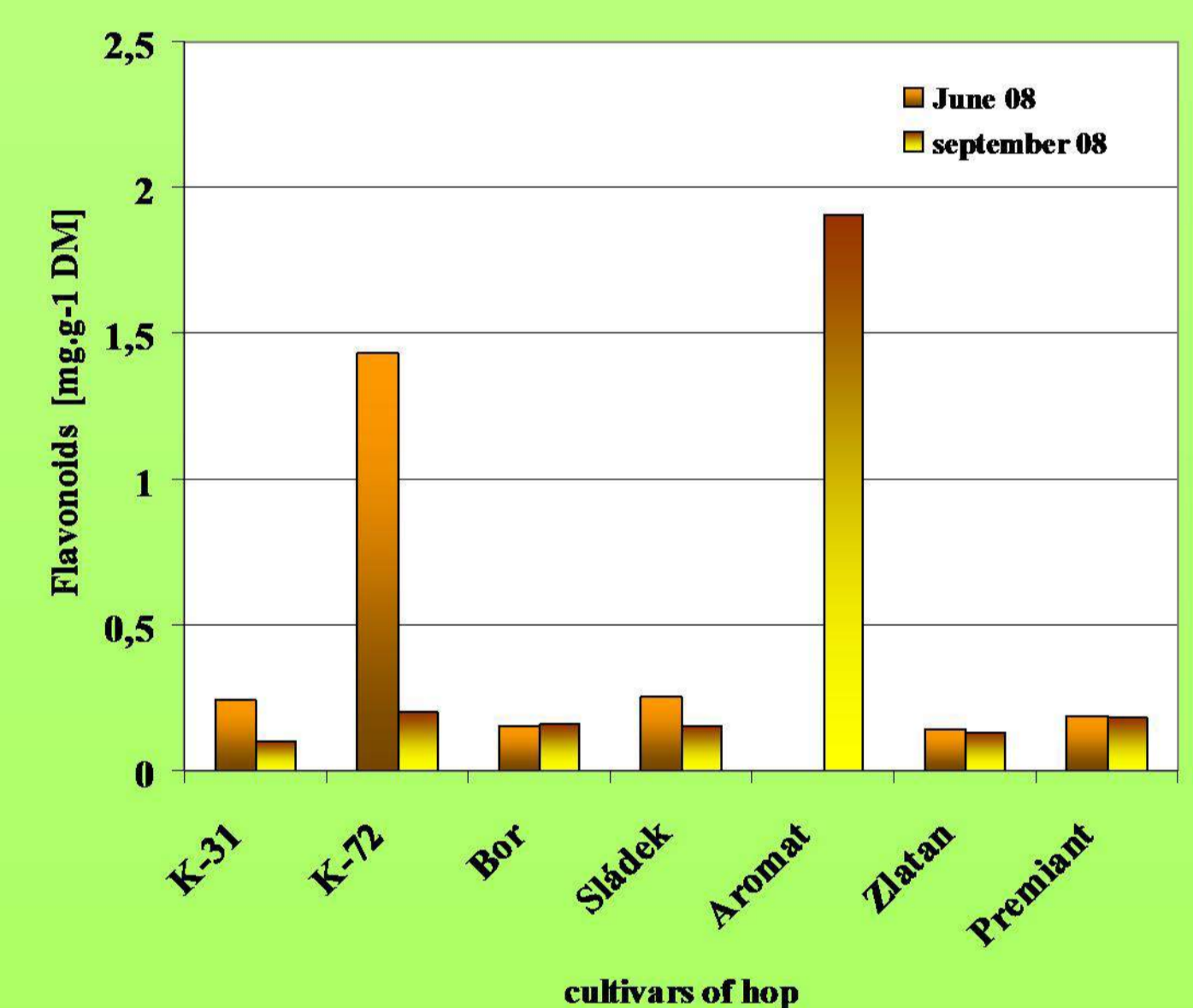


Fig. 2 Flavonoids content in hop leaves during the vegetal period

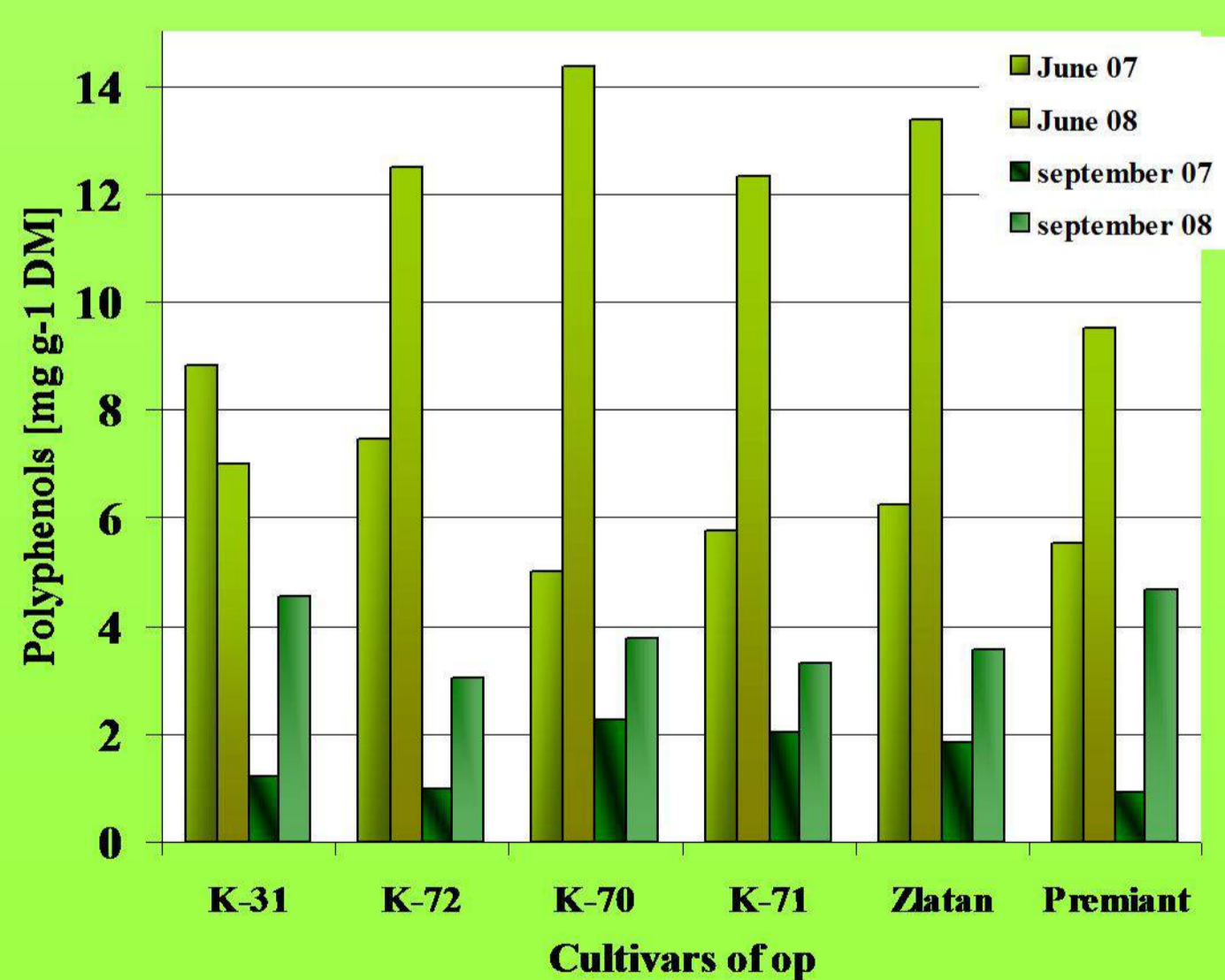


Fig. 1 Polyphenols content in hop leaves in 2007, and 2008

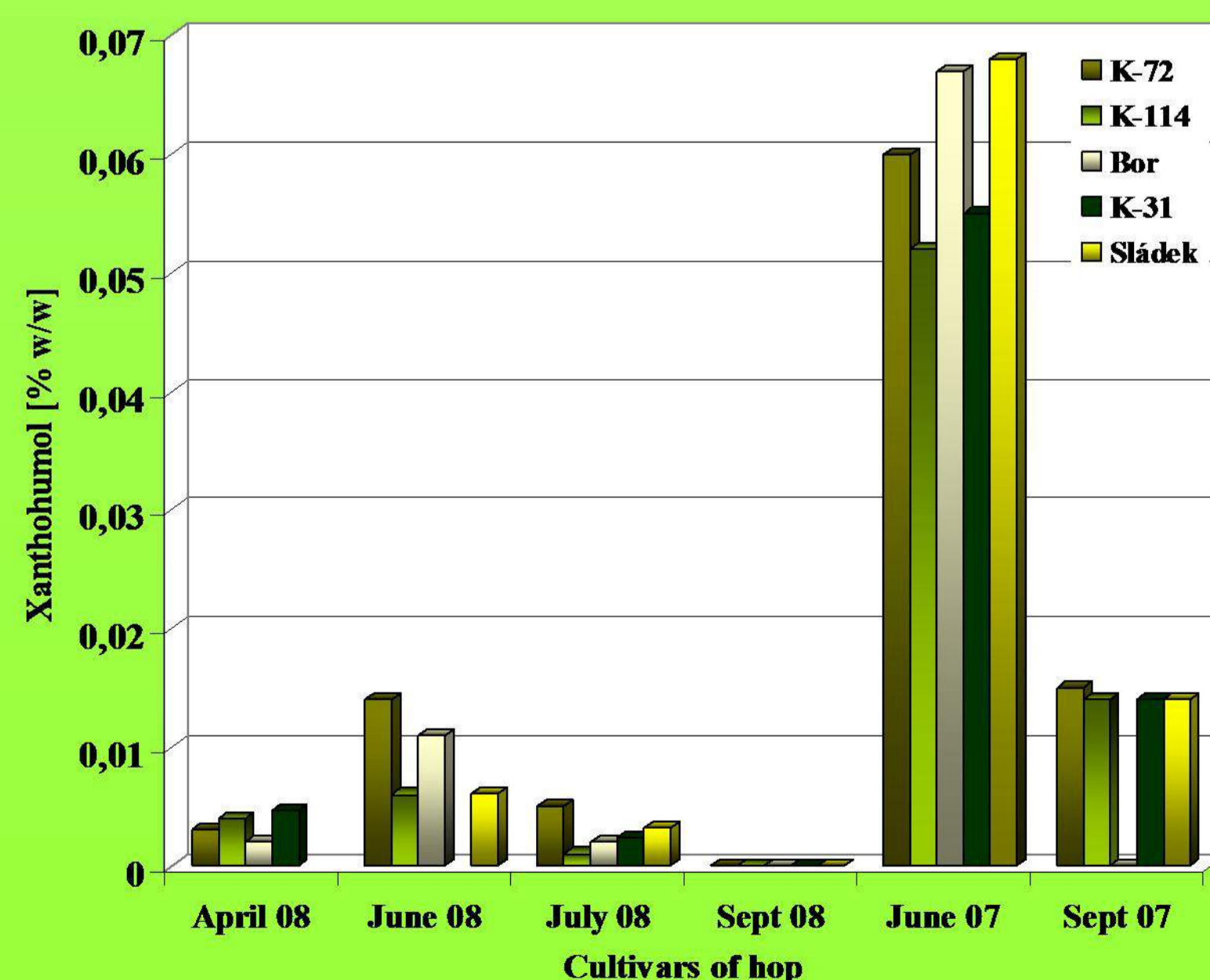


Fig. 2 Xanthohumol contents in hop leaves during the vegetal period in 2007, 2008

Tab. 2 Flavonoids content in hop leaves in 2007, and 2008

Cultivars	Flavonoids [mg g <sup>-1</sup> DM]			
	6/07	6/08	9/07	9/08
<i>K-31</i>	6.37±0.51	0.24±0.02	0.65±0.02	0.1±0.01
<i>K-72</i>	6.31±0.49	1.43±0.05	0.48±0.02	0.2±0.01
<i>Bor</i>	3.45±0.12	0.15±0.01	0.71±0.01	0.16±0.02
<i>Sldek</i>	3.24±0.21	0.25±0.01	0.76±0.01	0.15±0.01
<i>Zlatan</i>	5.03±0.22	0.14±0.01	0.61±0.01	0.13±0.01
<i>Premiant</i>	2.13±0.09	0.19±0.01	0.72±0.01	0.18±0.01

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