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STUDIES ON THE HERBAL TEA PREPARED FROM ROSE HIPS GATHERED AROUND GÜMÜŞHANE

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Summary: Field studies revealed that fruits of Rosa canina L. (form a, b, c) and Rosa dumalis Bechst. subsp. boissieri (Crepin) Ö. Nilsson var. boissieri were used to prepare herbal teas. Microscopic studies together with measurements of ascorbic acid, tannin and total flavonol content and pharmacopoeiae analysis were performed on the fruits to evaluate the tea. Both the fruits of two species and the tea sample were found in accordance with pharmacopoeiae standarts.

GÜMÜŞHANE ÇEVRESİ KUŞBURNU (ROSA) MEYVALARINDAN HAZIRLANAN BİTKİSEL ÇAYLAR ÜZERİNDE ARAŞTIRMALAR

Özet: Yapılan arazi çalışmasında Rosa canina L (form a, b, c) ve Rosa dumalis Bechst. subsp boissieri (Crepin) Ö. Nilsson var. boissieri meyvalarının bitkisel çay hazırlanmasında kullanıldığı saptanmıştır. Çay olarak değerlendirilen meyvalar üzerinde mikroskobik çalışmalar, askorbik asit, tanen ve total flavonol tayinleri ve farmakope analizleri yapılmıştır. Her iki türün meyvalarının ve fabrikadan alınan çay örneğinin farmakope standartlarına uygun olduğu saptanmıştır.

Key words : *Rose hips, Rosa canina L., Rosa dumalis Bechst., Herbal tea*

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INTRODUCTION

The genus Rosa is represented by 24 species in Turkey widely distributed throughout Anatolia (1). Herbal tea, marmalade and fruit juice are prepared from rose hips in a plant in Gümüşhane. Rose hips are used for hemorrhoids, infectious diseases and eczema in folk medicine (2,4) The composition and pharmacological properties of fruits of Rosa species have been reviewed previously (5).

MATERIAL AND METHODS

Field studies along Gümüşhane Valley in June 1987 revealed that rose species collected for the preparation of the herbal tea were :

Rosa canina L. (form a, b, c) and **Rosa dumalis** Bechst. subsp. **boissieri** (Crepin) Ö. Nilsson var. **boissieri**

Rose hips of these two species were collected from Gümüşhane Valley in October 1987, and voucher specimens were deposited at Ankara University, Faculty of Pharmacy Herbarium (AEF).

Seeds and hairs were separated before grinding the rose hips. These fruits together with the herbal tea sample were used as the test material.

Ash, Acid Insoluble Ash, Water - soluble Matter : Amounts were assayed by the methods given in British Pharmacopoeia 1980 and Turkish Pharmacopoeia 1974.

Loss on Heating : Assayed according to Hungarian Ph. 1970.

Quantitative Determination of Ascorbic Acid : The titrimetric method given in Ph. USSR 1961 was employed.

Quantitative Determination of Tannins : Combined hide powder titrimetric method was employed (6)

Total Flavonol Assay : Total amount was determined by spectrophotometric assay using cyanidin reaction and quercetin as tha standard flavonol (7) since quercetin glycosides are predominant in rose hips (8,9).

RESULTS AND DISCUSSION

Anatomical studies on the fruits of **Rosa canina** and **Rosa dumalis** subsp. **boissieri** var. **boissieri** revealed that anatomical characters of these two species are similar except that distribution of calcium oxalate crystals (druses) differs in these two species. These crystals are mostly localized in the parenchyma cells located next to the inner epidermis in **Rosa canina** fruits but they are scattered through whole parenchyma in **Rosa dumalis** fruits. (Figure 1,2).

Results of ash, acid insoluble ash, water soluble matter, loss on heating, ascorbic acid, tannins and total flavonol assays are given in table 1.

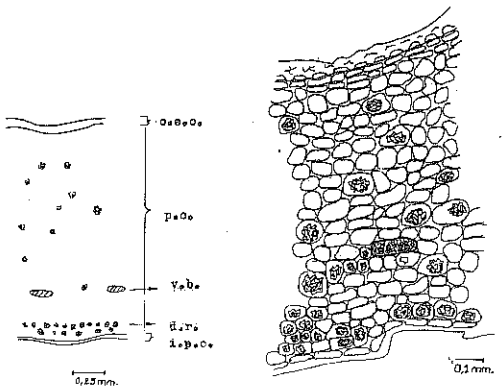

Figure 1. Transverse section of Rosa dumalis subsp. boissieri var. boissieri fruits with different magnifications

o.e.c.	= outer epidermis cells, cuticle
p.c	= parenchym cells
v.b.	= vascular bundle
d.r.	= druse row
i.e.c.	= inner epidermis cells

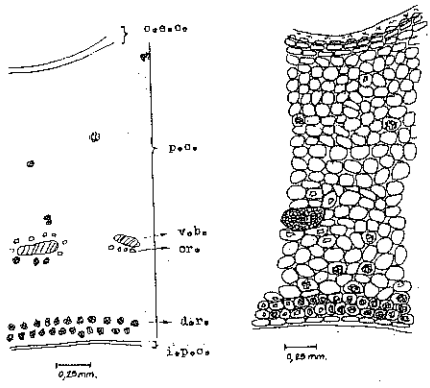

Figure 2. Transverse section of Rosa canina fruits with different magnifications

o.e.c.	= outer epidermis cells, cuticle
p.c	= parenchym cells
v.b.	= vascular bundle
c.r.	= crystal
i.e.c.	= inner epidermis cells

Table 1 - Results of the assays of rose hips

SPECIES	% ash	% acid insoluble ash	% water soluble extract	% loss on drying	% ascorbic acid	% tannin	% total flavonol
Rosa dumalis	4.99	0.14	67	11.42	2.0	7.62	0.69
Rosa canina (a)	4.61	0.08	65	11.46	0.57	4.22	0.38
Rosa canina (b)	5.28	0.08	68	11.18	0.67	4.30	0.33
Rosa canina (c)	4.70	0.03	69	11.14	0.66	2.43	0.21
Fruit sample from factory	6.39	0.18	63	8.72	1.8	4.86	0.68

Table 2 - Pharmacopoeia values for rose hips

Pharmacopoeia	ash %	Acid soluble ash %	Ascorbic acid %	Water soluble extract %	Loss on drying %
Pharmacopoeia of S.S.C.B. 1961	3	-	1.6	-	8
Parmacopoeia Hungarian 1970	7	0,5	0,25	not less than 50	-
Pharmacopoeia Helvetica 1971	-	-	0,35	-	-
Deutsches Arzneibuch 1953	5	-	-	-	-
The Pharmacopoeia of Japan 1976	6	-	-	-	-
Pharmacopoeia British Herbal 1983	5	1,5	-	-	-
Pharmacopoei Francaise 1988	-	-	0,2	-	-
Deutsches Arzneibuch 1986	7	-	0,3	-	9,8

The Herbal tea prepared in Gümüşhane contains Rosa canina L. (form a, b, c) and Rosa dumalis Bechst. subsp. boissieri (Crepin) Ö. Nilsson var. boissieri fruits. As a result of our studies the first species is found to contain 0.57 - 0.66 % ascorbic acid and the second species 2 % ascorbic acid whereas the herbal tea was found to contain 0.36 % ascorbic acid. This decrease in ascorbic acid content depends on various factors (5).

Botanical origin is another most important factor. If a batch of tea is prepared from R. dumalis, ascorbic acid content will be high, however herbal tea prepared from R. canina will contain lower. In fact, herbal tea bags were found to contain only 0.36 % ascorbic acid. In both cases all values were in accordance with most Pharmacopoeia standards. However it should be emphasized that Rosa dumalis subsp. boissieri fruits are especially a good source for ascorbic acid.

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