

THE COUMARINS OF THE GENUS *Ficus*

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The genus *Ficus* includes about 1000 species distributed in countries with a tropical climate [1]. About 10 species have been studied, and in three of them (*F. carica*, *F. sycomorus* L., *F. salicifolia*) psoralen and bergapten, which are active photosensitizers, have been found [2, 3]. We have investigated 30 species of this genus from the collection of the Batumi Botanical Garden and the Main Botanical Garden of the Academy of Sciences of the USSR (the samples of raw material were kindly given to us by Ts. A. Tatarishvili and M. I. Mazurenko). To detect coumarins, we used a well-known method [4, 5] based on their color reactions with diazotized sulfanilamide, after separation from accompanying substances by paper chromatography. Coumarins appear in the form of red, orange, or violet spots, while phenolic components (flavonoids, chromones, xanthenes, and tanning substances) remain at the start in the form of yellow and brown spots.

As a result of the investigations that we have performed, coumarin derivatives were found in the leaves of eight species of fig, although psoralen was not detected in any of the 30 species.

From the leaves of *F. ramentaceae* Roxb. by column chromatography on Al_2O_3 with elution by means of ether we isolated a coumarin with the composition $C_{10}H_8O_3$, mp 117-118°C, R_f 0.82, and from the leaves of *F. pumila* we isolated a furocoumarin, $C_{12}H_8O_4$ with mp 188-189°C, R_f 0.77.

On the basis of their compositions, IR spectra, and mixed melting points, the first was identified as herniarin and the second as bergapten.

TABLE 1

Species	R_f values and color of the spots			
<i>F. celtibata</i> Blume	0,0 Brown	0,13 Yellow-red	0,28 Orange	0,87 Orange
<i>F. bubalina</i>	0,0 Brown	0,9 Lilac		
<i>F. erecta</i> Thunb.	0,0 Rose	0,06 Yellow	0,28 Yellow	0,87 Yellow
<i>F. Monckii</i> Hassb.	0,0 Brown	0,05 Yellow	0,32 Yellow	
<i>F. pumila</i> L.	0,0 Orange	0,05 Rose	0,77 Lilac	
<i>F. ramentaceae</i> Roxb.	0,0 Orange	0,06 Yellow	0,11 Yellow	0,82 Red
<i>F. retusa</i> Wall.	0,0 Brown	0,05 Yellow	0,11 Yellow	0,90 Lilac
<i>F. lyrata</i> Warb.	0,0 Yellow	0,10 Yellow	0,82 Red	

The results obtained show that the coumarins of the genus are not limited to psoralen or bergapten alone. We have found substances giving brown and yellow spots at the start, which are not coumarins, in *F. altissima* Blume, *F. aspera* Forst., *F. baileyana* Domin, *F. brevifolia* Nutt., *F. elastica* Roxb, *F. hispida* L., *F. lucor* Buch, *F. laurifolia* Hort, *F. pyriformis* Hook, *F. speciosa* Fisch, *F. bengalensis* L., *F. bengalensis* Krishna C. DC., *F. capensis* Thunb, *F. craterogtoma*, *F. glomerata* Roxb, *F. montana* Burm, *F. retusa* L. *F. rubiginosa* Desf, *F. repens* Willd, *F. ruginosa* G. Don, *F. stricta* Miq, *F. subrepanda* Wall.

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