

The rust under study is quite different and is named *Uromyces orthosiphonis*.

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FLUORESCENT INDICATORS FOR ACID-BASE TITRATIONS—PART II

IN continuation of our previous note¹ the fluorescence changes with change in pH of the remaining coumarin derivatives in our collection are here reported. The coumarins which did not yield prominent changes in the range of pH 3.1 to 10.1 in the previous investigation were re-examined at other ranges to complete the investigation. The results with coumarin² are included for comparison.

S. No.	Indicator	Colour change	pH range
1	7-Methoxy-3-phenyl-coumarin	Deep blue to colourless	10.1-14.0
2	7-Methoxy-4-methyl-coumarin	Nil	0.1-10.1
3	5-Methoxy-4 : 7-di-Methyl coumarin-3-acetic acid	"	"
4	" Ethyl ester	Nil to blue	1.1-3.1
5	5 : 7-Dimethoxy-4-methyl-coumarin-3-acetic acid	Blue to deep blue	"
6	" Ethyl ester	"	0.1-3.1
7	5-Methoxy-4 : 7-di-methyl-coumarin	Very pale yellow to pale blue	0.5-3.1
8	3-Acetyl-7-methoxy-8-methyl coumarin	Blue to colourless	10.1-14.0
9	5 : 7-Dimethoxy-4-methyl coumarin	Pale blue to blue	<0.1-1.1
10	Dicoumarin	Greenish yellow to blue	0.1-3.1
11	Umbelliferone-8-aldehyde	Pale blue to blue	4.1-6.1
12	5-Methyl 3-carb-ethoxy umbelliferone	Deep violet to deep blue	<0.1-0.1
13	4 : 8-Dimethyl umbelliferone	Yellow to blue	0.1-3.1
14	Coumarin	Weak green to bright green	9.8-12.0

The data show that while in general the umbelliferones show a marked fluorescence colour

change in the neighbourhood of the neutral point, the coumarins, without a hydroxyl, require strongly acid or alkaline ranges. Two exceptions have been noted among umbelliferone derivatives.

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1. Neelakantam and Viswanath, *Curr. Sci.*, p. 15 of this issue. 2. Radley and Grant, *Fluorescence Analysis in Ultra-violet Light*, 1939, 3rd edition.

TELIA OF THE RUST ON CULTIVATED FIGS

Cerotelium Fici (Cast.) Arth. is widely distributed in the tropical and subtropical regions where figs are cultivated. The rust also occurs on many wild species of *Ficus*. Arthur¹ placed the rust under *Physopella* as *P. Fici* (Cast.) Arth., but latterly, *Physopella* has been merged partly with *Phakopsora* and partly with *Cerotelium*.

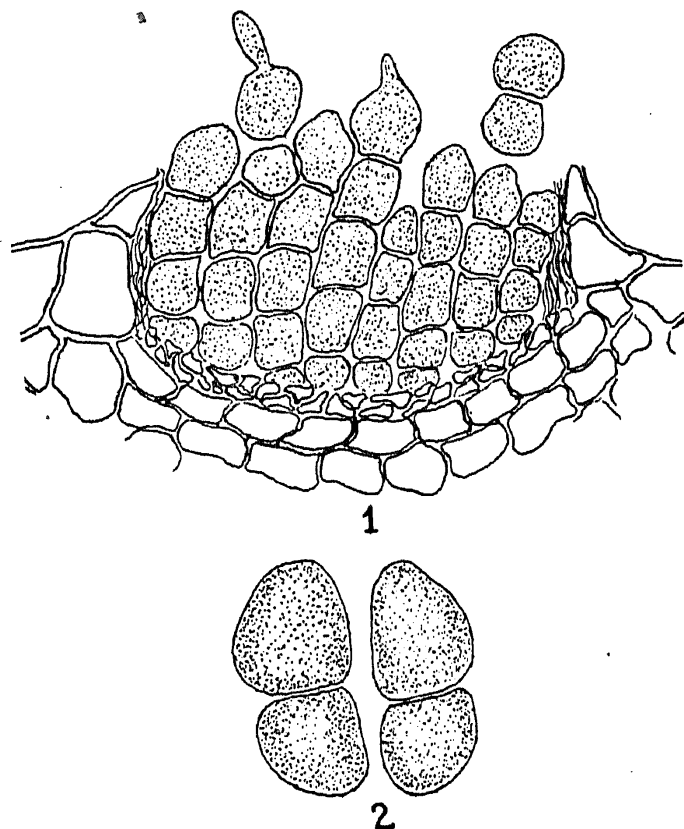


FIG. 1. Section through telium × 450.

FIG. 2. Teliospores × 800.

The rust on all the species of *Ficus* including the cultivated figs occurs only in the uredial stage, except in one collection of telial stage