

REVIEW

Alkaloidal Content of Genus *Fumaria*

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INTRODUCTION

A genus *Fumaria* is distributed in Asia, Europe and Africa. Practically all the species are known by the name of Fumitory. Two species namely *F. parviflora* and *F. indica* are found in India.¹⁻²

The plant is bitter, slightly acid and astringent. It is regarded as a laxative, diuretic and beneficial in dyspepsia and scrofulous skin infection.

Chemical Investigation: The genus 'Fumaria' is mainly explored for the presence of alkaloid, mainly isoquinoline type, listed in Table-1.

TABLE-1
ALKALOIDAL CONTENT OF *FUMARIA* SPECIES

Type of alkaloid	F. species Alkaloids isolated	Reference
Simple acyclic	<i>F. indica</i> Bisnorargemomine, Paprazine, Papracine fumariflorine	3, 4
	<i>F. parviflora</i> Fumariflorine, Fumariflorine ethylester	5
Simple isoquinoline	<i>F. indica</i> N-Methylcoryaldine, Oxyhydrastinine, Noroxyhydrastinine, Papraline	3, 4, 6
Phthalide isoquinoline	<i>F. indica</i> Adlumidine, Bicuculline, Narceimicine, Parfumine, Paparine, Paprafumine	6,30
	<i>F. parviflora</i> Adlumidine, Bicuculline, Corlumine, Fumara- mine, Fumarifine, α -Hydrastine, Microcarpine	22, 25, 32, 33
	<i>F. kralikii</i> Adlumidine	9
	<i>F. bella</i> Adlumine, Bicuculline	12
	<i>F. densiflora</i> Adlumidine, Fumaridine, Parfumine	13
	<i>F. asepala</i> Bicuculline	11, 15
	<i>F. microcarpa</i> Microcarpine	33

	<i>F. judaica</i>	17
	d-Adilumidine	
	<i>F. gaillardotii</i>	23
	Bicuculline, N-methylhydrastine	
	<i>F. vaillanti</i>	33, 34
	Flumaramine, Fumaridine, Microcarpine	
Benzophenanthridine	<i>F. indica</i>	4, 35
	Lastourvilline, 8-methoxydihydrosanguinarine, Norsanguinarine, Oxysanguinarine	
	<i>F. parviflora</i>	9, 25
	Sanguinarine	
	<i>F. capreolata</i>	11
	Sanguinarine	
	<i>F. bella</i>	12
	Sanguinarine	
	<i>F. arepala</i>	11, 15
	Sanguinarine	
Roeadine	<i>F. parviflora</i>	5
	Rhoeagenine	
	<i>F. bella</i>	12
	Protopine	
	<i>F. densiflora</i>	13, 14
	Cryptopine, Protopine	
	<i>F. asepala</i>	11, 15
	β -Allocriptopine, Cryptopine, Protopine	
	<i>F. macrocarpa</i>	16
	Cryptopine, Protopine	
<i>F. judaica</i>	17	
β -Allocriptopine, Protopine		
<i>F. gaillardotii</i>	23	
Protopine		
Benzylisoquinoline	<i>F. indica</i>	2, 6, 31
	Fumariline, Fumaritine, Fumarigine, Fumaritine N-oxide, Papracirine, Raddeaine	
	<i>F. parviflora</i>	9, 24, 25
	Dihydrofumariline, Dihydroparviflorine, Fumariline, Fumaritine, Parfumine, Parfumidene, Parviflorine α -glycoside	
	<i>F. kralikii</i>	9, 26
Fumarophycine, o-methylfumarophycine, Norfumaritine		

	<i>F. densiflora</i>	13, 27
	Fumariline, Fumaritine, Densiflorine	
	<i>F. macrocarpa</i>	16
	Fumariline	
	<i>F. judaica</i>	
	Fumariline	
	<i>F. gaillardotii</i>	23
	Fumaritine, Fumaricine	
	<i>F. officinalis</i>	28, 29
	Bulgaramine, Fumaricine, o-methoxyfumarophycine	
Protoberberine	<i>F. indica</i>	7, 8
	Coptisine, Dehydrocheilanthifoline, Dihydrocoptisine, dl-tetrahydrocoptisine.	
	<i>F. parviflora</i>	5, 9
	Stylophine	
	<i>F. kralikii</i>	9
	Berberine, Canadine, Coptisene, Stylophine	
	<i>F. capreolata</i>	10-12
	Capnoidine, Cheilanthifoline, Isoboldine, Scoulerine, Stylophine	
	<i>F. bella</i>	12
	Cheilanthifoline, Isboldine, Scoulerine, Stylophine	
	<i>F. densiflora</i>	13, 14
	Cheilanthifoline, Coptisine, Palmitine, Sinactine, Scoularine	
	<i>F. asepala</i>	11, 15
	Capnoidine, Coptisine, Scoulerine, Stylophine	
	<i>F. macrocarpa</i>	16
Coptisine, 1-Sinactine		
<i>F. judaica</i>	17	
Coptisine, Scoulerine, Stylophine		
<i>F. gaillardotii</i>	15	
Stylophine		
Protopine	<i>F. indica</i>	18-21
	Protopine	
	<i>F. parviflora</i>	5, 9, 22
	Cryptopine, Izimirine	
<i>F. Capreolata</i>	10-12	
β -Alloccryptopine, Cryptopine, Protopine		

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