

A Brief Overview on Crinum Latifolium

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Abstract: *Crinum latifolium* well - known ornamental species, a well - known home - grown herb in India, that belong to the Amaryllidaceae family. *Crinum latifolium* is known as "Sudarshana" or Sukhdarshan in Ayurveda. It means that simply gazing at it brings you calm and contentment (Seeing it). The *Crinum latifolium* roots, stems, flowers and leaves are employed in herbal therapy, and also used as an ornamental plant. Pharmacological and therapeutic research, phytochemistry, Sanskrit synonyms of the *Crinum latifolium* and its active components are presented in this overview.

Keywords: *Crinum latifolium*, Amaryllidaceae, Pharmacology, Sanskrit synonyms, ornamental plant, Phytochemistry

1. Introduction

A wide variety of therapeutic plants can be found all over the world. Many weeds in our environment are highly effective medicinal plants that can help with a variety of significant health issues (1). India has long been known as a great store of natural remedies among ancient cultures (2, 3, 25). *Crinum* is a genus of roughly 180 species that includes a diverse family of lovely perennial plants. They are used for decoration, gardens, and bouquets, and are also known as Spider lily, Trumpet flower, and Swamp lily, among other names. *Crinum* is a tropical plant that can be found in Asia, Southeast Asia, Australia, and the Pacific Islands, as well as the Caribbean, Florida, and Louisiana. *Crinum latifolium* is known as "Sudarshana" or Sukhdarshan in Ayurveda. It means that simply gazing at it brings you calm and contentment (Seeing it). *Crinum defixum* was reported by Sushruta in Ayurvedic literature dating back to 5000 BC (Kandali). This herb is mostly used in Ayurveda for painful

swellings, unexplained fevers, poisoning, and skin disorders (4).

Botanical Description

The leaves of a little plant that grows up to 3 feet long and 3 - 4 inches wide have a length of 2 - 4 inches and a breadth of 3 - 4 inches. The large, wide leaves resemble the hood of a snake. It can be found all throughout India. The flowers are stunning, white with a reddish tinge. Flowering stems are long and stout, measuring around 2 - 3 mm in length. Fruits are spherical, 2 - 3 inches in diameter, and contain 8 - 10 seeds (4).

Latin Name - *Crinum latifolium*

Family - Amaryllidaceae

Habitat

South Asia, Southeast Asia - Caribbean countries, Australia, Fiji, Philippines, Thailand, Singapore Malaysia, Louisiana, Florida and other tropical countries, Brajendranagar, Udaipur, Tripura (5, 14, 6).

Sanskrit Synonyms

S. NO.	Sanskrit Name	Meaning
1	NAGDAMAN	The large, wide leaves resemble the hood of a snake.
2	MEDHI	It helps with memory.
3	VISHAMANDAL	To get rid of ingested toxin, the leaves juice (10 - 20 ml dosage) can be used as an emetic and purgative.
4	RAKT PUSHPI	Sudarshana is another English name for <i>Crinum latifolium</i> , which is also known as Pink Striped trumpet lily. <i>Crinum asiaticum</i> blooms in white.
5	RATNAMALA	Because the blooms are lovely and grow in a circular pattern from the umbels
6	VRITT PUSHPI	the flowers grow in a circular pattern.
7	JAMBU	The fruit looks similar to Jambu fruit, also known as Java apple or Jamun. The fruit looks like an onion bulb.
8	KANDALI	Sushruta described <i>Crinum</i>
9	DUDARSHANA	The fruit give foul smell
10	CHAKRAVAHA	the flowers grow in a circular pattern.
11	MADHUPARNIKA	Taste of the leaves are sour, bitter
12	SUDARSHANA, SOMVALLI, MADHUPARNIKA, CHAKRAVAHA	Bhavprakash in 17 century gave these names to <i>Crinum</i> (4)

Verneclular Name

S. No.	Language Name	Name
1	Hindi	Chinder, Kanwar, Kunwal, Pindar Baranwar
2	English	<i>Crinum Latifolium</i> , Trumpet Lily, Spider Lilly
3	Urdu	Nagdaun
4	Marathi	GadambiKanda
5	Bengali	Bada Kanod, Sukha Darshana, GaerhonarPatta
6	Kannada	Sudarshana, VishaMungli
7	Tamil	VishaPungil, Vishamungil, Perumanarivingaataam
8	Telugu	KesaraChettu
9	Phillippines	Lirio

Ayurvedic Properties

S. No.	Ayurvedic Property Name	Ayurvedic Property of <i>Crinum Latifolium</i>
1	Rasa (Taste)	Sweer, Bitter (Madhur, Tikt)
2	Virya (Potency)	Ushana (Hot)
3	Vipaka (Post Digestion Property)	Sweet (Madhur)
4	Guna (Inherent Properties)	Ruksha, Tikshana (Dry, Pungent)

Phytochemistry 7 - 14, 24

Leaves Extract of <i>Crinum Latifolium</i>	Aqueous Extract or Juice of Leaves of <i>Crinum Latifolium</i>	Other Chemical Constituents
<ul style="list-style-type: none"> Carbohydrates, Alkaloids, Glycosides, Saponins, Phytosterols, Phenols, Tannins, Flavonoids, Proteins And Amino Acids, Fats & Fixed Oils Gum and Mucilage's 	<ul style="list-style-type: none"> Crinamine, Crinamidine, Crinafoline, Crinafolidine 	<ul style="list-style-type: none"> N - Benzyl - N - (B - Phenethylamine) Nucleus (Belladinetype) 2 - Benzopyrano - (3, 4 G) - Indole Nucleus (Lycoreninetype) PyrrlophenanthridineNucleus (Lycorine - Type) Dibenzofuran Nucleus (Galanthamine - Type) 5, 10 B - EthanophenanthridineNucleus (Crinine - Type) 2 - Benzopyrano - (3, 4 C) - Indole Nucleus (Tazettinetype) 5, 11 - Methanomorphanthridine Nucleus (Montaninetype) BenzylisoquinolineNucleus (Cherylline - Type)

Pharmacological Activities**Antimicrobial activity**

The methanolic extract of *crinum latifolium* plant showed antimicrobial activity through disc diffusion method against gram negative and positive bacteria^{15, 16}.

Anti - inflammatory activity

The methanolic extract of *crinum latifolium* plant showed Anti - inflammatory activity^{16.21% & 20.55%}10mg/ml for hypotonic solution and heat induced condition^{15, 16}.

Thrombolytic nature

The thrombolytic nature of the plant was found significant ($p < 0.001$). The plant showed medium clot lysis, i. e. $14.64 \pm 0.540\%$, $18.01 \pm 0.766\%$, $21.78 \pm 1.039\%$, $28.43 \pm 0.982\%$, and $33.84 \pm 1.749\%$ at 2, 4, 6, 8, and 10 mg/ml concentrations. Crude methanolic extract of *crinum latifolium* has good thrombolytic activity¹⁷.

Antitumor activity

Extracts of *crinum latifolium* and alkaloid fraction (expect pure 6 - hydroxycrinamidine) stop the proliferation of lymphoma cells¹⁸.

Anthelmintic activity

Anthelmintic activity was assessed applying five different concentrations of the plant extract and recording the time of paralysis and death¹⁹.

Induced Degranulation of mast cells

The effect of glucan A and phosphatidylglycorine, isolated from *Crinum latifolium* L. (family Amaryllidaceae) was

studied on the rate of degranulation of mast cells of albino rats. Different combinations of glucan A and phosphatidylglycorine (5–20 and 5–10 $\mu\text{g/mL}$, respectively) *in vitro*, produced statistically significant protection against Tween 80 - induced degranulation, as well as to sensitized mast cells challenged with an antigen (horse serum). The combination (10–20 mg/kg), when administered *in vivo*, also provided protection against compound 48/80 - induced degranulation of mast cells²⁰.

Antibacterial and anticancer activity

Biosynthesis of silver nanoparticles (AgNPs) and gold nanoparticles (AuNPs) by using aqueous extract from *C. latifolium* leaf. The actions of four bacterial strains were strongly inhibited by using the CL - AgNPs. The biosynthesized metallic nanoparticles (MNPs) exhibited the excellent catalytic degradation²¹.

Inhibit human umbilical endothelial cells formation

4 - seneciolyxymethyl - 3, 4 - dimethoxycoumarin and 5, 6, 3' - trihydroxy - 7, 8, 4' - trimethoxyflavon were isolated from the methanol extract of *Crinum latifolium* by bioassay - guided separation. Compound 4 - seneciolyxymethyl - 3, 4 - dimethoxycoumarin was found to be strongly inhibitory against the *in vitro* tube - like formation of human umbilical venous endothelial cells (HUVECs) while manifesting no cytotoxicity in tumor cell lines (B16F10, HCT116). Significant inhibitory activity (inhibition percentage, 53.5%) was still observed at concentrations as low as 1 microg/mL. Compound 5, 6, 3' - trihydroxy - 7, 8, 4' - trimethoxyflavone showed a modest inhibitory effect on the tube - like formation of HUVECs²².

Anticancer activity

Four novel and potentially bioactive Amaryllidaceae alkaloids, 4, 8 - dimethoxy - cripowellin C (1), 4, 8 - dimethoxy - cripowellin D (2), 9 - methoxy - cripowellin B (3), and 4 - methoxy - 8 - hydroxy - cripowellin B (4), together with one known alkaloid, cripowellin C (5) were isolated from the 95% EtOH extract of the bulbs of *Crinum latifolium*. These alkaloids 1 - 5 exhibited potent cytotoxicity against all of seven tested tumor cell lines with ($IC_{50} < 30$ nM) 23.

Antimicrobial activity

Alkaloids 9 - methoxy - cripowellin B, and 4 - methoxy - 8 - hydroxy - cripowellin B displayed the significant antimicrobial activity with IC_{50} values < 0.50 mM 23.

Antioxidant activity

Alkaloids 9 - methoxy - cripowellin B, and 4 - methoxy - 8 - hydroxy - cripowellin B displayed antioxidant activity in the ABTS⁺ and DPPH test. Additionally, Alkaloids 1 - 5 exhibited comparable inhibition of Cox - 1 (>64%) and Cox - 2 (>90%) with positive control 23.

2. Conclusions

Numerous investigations on various components of *Crinum latifolium* have been undertaken, and this plant has been produced as a medication by pharmaceutical companies. Identification, categorization, and recording of plants required a thorough and methodical investigation, which could be a useful strategy to promote traditional knowledge of the therapeutic herbal plant.

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