

**EXPLORING THE THERAPEUTIC POTENTIAL OF COSTUS IGNEUS: A COMPREHENSIVE
REVIEW OF ITS PHYTOCONSTITUENTS AND MEDICINAL USES****Shekhar S. Nalawade, Prathamesh P. Mohite, Adesh A. Patil Aarti A. Varne,
Rahul S. Adnaik****Department of Pharmaceutical Chemistry and Department of Pharmacology
Anandi Pharmacy College Kalambe Tarf Kale, Kolhapur****Corresponding author Mail ID: shekharnalawade7424@gmail.com****ABSTRACT:**

In The present review provides an in-depth analysis of the medicinal properties of *Costus igneus*, also known as Insulin plant, and its phytochemical constituents. The review focuses on the pharmacological activities of the plant's flavonoids, alkaloids, terpenoids, and polyphenols, which include antioxidant, hypoglycemic, antidiabetic, anti-inflammatory, and antimicrobial effects. Furthermore, the traditional uses of *Costus igneus* in different parts of the world are discussed, with particular emphasis on its potential in managing diabetes mellitus, respiratory illnesses, digestive disorders, and skin diseases. The authors critically evaluate the available literature on the topic and identify areas for future research and development of *Costus igneus* as a therapeutic agent. Overall, this review highlights the significant potential of *Costus igneus* as a natural remedy for various ailments and provides a foundation for further investigation into its pharmacological properties.

Keywords: Antidiabetic, Hyperglycemic Agent, Herbal Plant, Phytochemicals, Therapeutic Efficacy, Anti-oxidant.

INTRODUCTON:

There are numerous herbal plants that show various therapeutic activities against hyperglycemia and cancer, which can be helpful in treating disorders and diseases. However, there is a magical remedial plant that possesses antidiabetic, anticancer, antifungal, and anti-inflammatory properties due to the presence of different phytochemicals such as ascorbic acid, alpha tocopherol, beta carotene, terpenoids, steroids, flavonoids, quercetin, kamaeperol, stigmasterol, disogenin, and tigogenin.

The aim of this review article is to provide valuable information regarding the pharmacological and therapeutic effects of these different phytochemicals present in *Costus igneus*. This review article will also help to provide a good approach to the treatment of various diseases. *Costus igneus* mostly shows anti-diabetic effects, and diabetic patients can directly consume fresh leaves of this plant to obtain hypoglycemic effects. Our aim with this review article is to provide information about the different phytochemicals present in *Costus igneus*.

COSTUS IGNEUS

Costus igneus, also known as the insulin plant, is widely found in India and has numerous therapeutic advantages, especially for its anti-diabetic properties. Many people in India consume the fresh leaves of this plant to balance insulin levels in their blood, which is why it is called the insulin plant. Besides, this plant contains various phytochemicals that can be used to treat various disease conditions. *Costus igneus* is crucial for all types of therapeutic activities, such as antidiabetic, anti-inflammatory, antimicrobial, antiproliferative, and antioxidant properties.

**Fig.1: Costus Igneus**

Phytoconstituents and medicinal uses

Sr. No.	Category of Phytochemicals	Name of Phytoconstituents	Uses
1	Anti-Oxidants	Ascorbic acid	Wounds healing properties enhance the absorption of iron from plant foods, increase immune system. To Protect your cells against harmful free radicals, which leads heart related disease like angina heart attack, hypertension, cancer and other diseases.
		Alpha tocopherol	Alpha-tocopherol increases the immune system and helps body to protects against harmful bacteria, viruses and anticoagulants properties.
		Beta carotene	It promotes good vision and eye health. Anti-cancer activity and protects from harmful free radicals.
2	Flavonoids	Kamapferol	used for the therapy of hormone-regulated cancers such as ovarian, breast, cervical, hepatocellular carcinoma, and leukaemia.
		Quercetin	Has Antidiabetic, antioxidant activity. Prevent cancer, hypoglycaemic activity.
3	Steroids	Diosgenin	Used against Alzheimer's disease
		Sitosterol	Decrease the cholesterol level in blood
		Tigogenn	Gout suppressants and plant metabolites
		Stigamasterol	Biosynthesis of various hormones like progesterone, androgens, estrogens and corticoids.
4	Fatty acids	Tetra decanoic acid	Used in cosmetic as an ingredient
		Oleic acid	Used as excipients as emulsifyingagents and solubilising agents in aerosol preparation
		Octadecanoic acid	Used as making cosmetics candles, soaps and plastics.
5	Terpenoids	Lupeol	Used as anti-cancer, anti-microbial, anti-diabetic, cardio and hepatoprotective effect
		Squalene	Used as lubricant, emollients and moisturizer.
		Phytol	Used in shampoo preparation and cosmetic formulations.
		Gracilin	Used against treatment of Alzheimer's disease

CONCLUSION

This review article provides information about the therapeutic efficacy of different phytochemical categories, which can offer a novel approach for the design, development, and formulation of various novel drug delivery systems. Additionally, it highlights the uses of different phytochemicals found in *Costusigneus*, including quercetin, diosgenin, beta-carotene, squalene, and alpha-tocopherol, for the formulation of anti-diabetic, anti-cancer, and anti-inflammatory drugs.

REFERENCE

- 1.Sonali Shinde *Costus ignus*: insulin plant and its preparations as remedial approach for diabetes mellitus International Journal of Pharmaceutical Sciences and Research 13(4):1551-1558DOI:10.13040/IJPSR.0975-8232.13(4).1551-58
- 2.Jose B, Reddy LJ. Analysis of the essential oils of the stems, leaves and rhizomes of the medicinal plant *Costus pictus* from southern India. Int J Pharmacy Pharm Sci. 2010;2(Suppl 2):100
- 3.Sun J, Chu YF, Wu X, Liu RH. Antioxidant and antiproliferative activities of fruits. J.Agric.FoodChemChem 2002; 50:7449-7454.CrossRef,PMid: 12452674.Benny M. Insulin plant in gardens. Natural Product Radiance. 2004; 3:349-50. [Google Scholar]
- 4.Elavarasi S, Saravanan K. Ethnobotanical study of plants used to treat diabetes by tribal people of Kolli Hills, Namakkal District, Tamilnadu, Southern India. Int J Pharm Tech Res. 2012; 4:404-11. [Google Scholar]
- 5.Meléndez-Camargo ME, Castillo-Nájera R, Silva-Torres R, Campos-Aldrete ME. Evaluation of the diuretic effect of the aqueous extract of *Costuspictus* D. Don in rat.Proc West Pharmacol Soc. 2006;49:72-4. [Google Scholar]
- 6.Eevera T, Pazhanichamy K, Pavithra S, Rubini S, Lavanya B, Ramya I. Morphological, anatomical and proximate analysis of leaf, root, rhizome of *Costusigneus*. Journal Int Pharm Res. 2010; 3:747-52. [Google Scholar]
- 7.[Last accessed on 2013 Jun 23]. Available from: http://www.zipcodezoo.com/Plants/C/Costus_igneus.
- 8.Gilman EF. Florida: University of Florida, Inc; c2012. *Costusigneus*.Fact sheet.FPS-151.EDIS-Electronic Data Information Source-UF/IFAS Extension. [Google Scholar]
- 9.Devi VD, Urooj A. Nutrient profile and antioxidant components of *Costus speciosus* Sm. and *Costusigneus*Nak. Indian J Nat Prod Resour. 2010; 1:116-8. [Google Scholar]
- 10.Shankarappa L, Gopalakrishna B, Jagadish NR, Siddalingappa GS. Pharmacognostic and phytochemical analysis of *Costusignitus*.InternationalePharmaceuticaScientia. 2011; 1:36-41. [Google Scholar]
- 11.Jothivel N, Ponnusamy SP, Appachi M, Singaravel S, Rasilingam D, Deivasigamani K, et al. Anti-diabetic activity of methanol leaf extract of *Costuspictus* D. Don in alloxan-induced diabetic rats. Journal of Health Science. 2007; 53:655-63. [Google Scholar]
- 12.George A, Thankamma A, Rema Devi VK, Fernandez A. Phytochemical investigation of Insulin plant (*Costuspictus*) Asian J Chem. 2007;19:3427-30. [Google Scholar]