

Coccinia Grandis: An Overview of its Phytochemistry and Pharmacological Applications in Modern Medicine

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Abstract: *Plants have played a significant role in maintaining human health and improving the quality of human life. Coccinia grandis, commonly known as ivy gourd or kundru, is a tropical vine belonging to the Cucurbitaceae family. It is widely distributed in tropical and subtropical regions of Asia, Africa, and Australia. Studies shows that the plant part extract possess a lot of medicinal properties like antidiabetic, antioxidant, Larvicidal, Cooling effect to the eye, Gonorrhea, Hypolipidemic, Skin diseases, Urinary tract infection Hypoglycemic, Cure sores on tongue, Analgesic, Antipyretic, Hepatoprotective, Tuberculosis, Eczema. Anti-inflammatory, Antispasmodic, Asthma, Bronchitis, GIT disturbances and many more.this review highlight that every part of coccinia grandis possess a great activities and are valuable as medicine. This review gives different insight on the phytochemistry of coccinia grandis it pharmacological applications in modern medicine and how coccinia grandis different plant part is so important and very useful in the treatment of various ailments.*

Keywords: *Cucurbitaceae*

I. INTRODUCTION

The Ayurveda is India's oldest medical system, having been practiced for around 5,000 years. The Chinese medical system was established in 200 B.C. and is still used today. The Unani medical system, also known as Greco-Arab medicine, dates back to Hippocrates, the father of medicine (460–360 B.C.). Twenty-one thousand plants are classified as herbs or therapeutic plants by the World Health Organization (WHO).¹

The great majority of people, especially those who reside in rural areas, rely heavily on medicinal plants to treat their illnesses. India is home to over 7000 different types of plants. According to WHO estimates, around 80% of people in poor nations get their main medical treatment mostly from traditional medicine. Plants have significantly contributed to preserving human health and raising living standards.(Pekamwa et al., 2013)One of nature's greatest gifts, plants, have been used to make medications.

They are used to make a variety of medications. We refer to these kinds of plants as medicinal plants. One As a precursor to the synthesis of numerous beneficial medications, we employ one or more of its organs for therapeutic purposes. Approximately 80% of modern medications are derived either directly or indirectly from plants, according to some liberal estimates.²

BOTANICAL DESCRIPTION OF COCCINIA GRANDIS

Coccinia grandis, commonly known as ivy gourd or kundru, is a tropical vine belonging to the Cucurbitaceae family. It is widely distributed in tropical and subtropical regions of Asia, Africa, and Australia. The plant is cultivated for its edible fruits, which are used in various culinary preparations and traditional medicines. (N. Jagannath,) It is a fast

¹ (Nagare et al.,2015)

²(Hossain et al.,2014)



growing perennial climbing shrub with white flowers. It grows several meters long and forms dense mat that readily cover shrubs and small trees.³

AGRONOMY

C. grandis grows as a dioecious perennial climber or as trailing herbaceous vine in adaptable climate ranging from semi-arid areas, dry monsoonal forest, tropical and subtropical rainforest, wooded grasslands, coastal and riparian areas, rice fields, in disturbed areas, open places, cane fields, roadside and around villages as well as backyard fences in the tropical and subtropical regions. It is usually found growing at low altitude but is also found up to 1000m as in Uganda and up to 2350m elevation in Ethiopia in all types of soil. It is a robust, hardy, sun-loving and aggressive vine and has an extensive root system which also makes it an invasive weed. It climbs over shrubs and trees and smothers them, forming a dense sun-blocking canopy.⁴

PLANT DESCRIPTION

It can grow up to 3m (i.e., 9ft 10in). The roots are tuberous; stems are green along with simple axillary tendrils. Leaves are glabrous and pentagonal in shape with dentate margins measuring about 6.5 to 8.5 cm long and 7 to 8 cm wide. Flowers are monoecious, white, star-shaped about 4cm in diameter and contain 5 tubular petals, female and male flowers emerge at the axils on the petiole having 3 stamens. The fruit is the edible part of the plant; they are slimy in touch, pulpy and ovoid to an ellipsoid shape. Young fruits are green in colour and turn to scarlet red when ripen which ranges from 2.5 to 5 cm in length and 1.3 to 2.5 cm in diameter. Fruits contain numerous seeds with thickened margins measuring up to 6 to 7 mm in length.⁵



Taxonomical classification

Kingdom: Plantae

Order: Cucurbitales

Family: Cucurbitaceae

Genus: *Coccinia*

Species: *C. grandis*

Binomial name: *C. grandis* (L.) J. Voig (Packirisamy Meenatchi)

PHYTOCHEMISTRY OF COCCINIA GRANDIS

C. grandis is rich in various bioactive compounds that are the reason for this plant's various pharmacological activities. The bioactive compounds extracted from various plant parts encompass a diverse array of chemical groups.⁶

It is important due to its nutritive value and contains water 94 %, dietary fibre 1.6 g, protein 1-2 g, fat 0.4 g, carbohydrates 3.1 g, carotene 156 µg, iron 14 mg, vitamin-A 260 IU, vitamin-C 28 mg, energy 18 kcal.

³(Shahid Iqbal Mohammed)

⁴(Aubine Molly Beera)

⁵(Aubine Molly Beera)

⁶(Md. Sabbir Hossain)



Table 1: Chemical constituent⁷

Leaves and stems	β - Sitosterol, Cephalandrol, Cephalandrine A & B, Heptacosane
Roots	Alkaloids, β - Amyrin, β - Sitosterol, Carbonic acid, saponin- Coccinoside, flavonoid- Ombuin 3-o-arabinofuranoside, Lupeol, Resins, Stigmast-7-en-3-one.
Fruit	β - Amyrin acetate, β - Sitosterol, β - Carotene, Cucurbitacin B, Lycopene, Lupeol, Taraxerol, Taraxerone
Seeds	The seeds contain fat and fixed oil which are mainly esters of linoleic, oleic and palmitic acids.

GENETIC DIVERSITY OF COCCINIA GRANDIS

The *Coccinia* genus comprises 30 species confined to tropical Africa, except *Coccinia grandis*, which occurs wild from Senegal east to Somalia and south to Tanzania, and also in Saudi Arabia, Yemen and India. *Coccinia grandis* is native to India, especially the eastern regions, besides Orissa, Jharkhand, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra and Andhra Pradesh, where a rich gene pool is available in natural forests as well as in homestead gardens due to its wider adaptability to adverse climatic conditions.⁸

The genus *Coccinia* Wight & Arn. Has nearly 30 species confined to tropical Africa but only one species *Coccinia grandis* (L.) Voight (Syn. *Coccinia indica* Wight & Arn. Or *Cephalandra indica* Nand.) is cultivated extensively in India, Myanmar, Srilanka and Malaysia and called ivy gourd, which is a dioecious perennial and has a Sanskrit equivalent "bimba", taking it to pre-Christian era.⁹

PHARMACOLOGICAL ACTIVITY

It has been mentioned in Ayurveda and Unani systems of medicine for treatment of diabetes, asthma, cough, bronchitis, skin eruptions, tongue sores, earache, jaundice, stomatitis, anthelmintic, digestant, liver tonic, febrifuge and expectorant and locally as analgesic¹⁰

A daily consumption of 100 g fruits is effective for lowering sugar content of diabetic patients. It is rich in vitamin C, B1 and B2 which is straightening the bones. These vitamins are required to strong the immune system of human body. Tendrils of ivy gourd are also rich in mineral like potassium, calcium and iron, which are needed in optimum quantity for functioning of body.¹¹

TABLE 2: MEDICINAL VALUE OF SOME PART OF COCCINIA GRANDIS¹²

PLANT PART	MEDICINAL VALUE
Leaf	Antidiabetic, Oxidant, Larvicidal, GI disturbances, Cooling effect to the eye, Gonorrhea, Hypolipidemic, Skin diseases, Urinary tract infection
Fruit	Hypoglycemic, Cure sores on tongue, Analgesic, Antipyretic, Hepatoprotective, Tuberculosis, Eczema. Anti-inflammatory
Stem	Antispasmodic, Asthma, Bronchitis, GIT disturbances, Urinary tract infection, Skin diseases, Expectorant
Root	Hypoglycemic, Antidiabetic, Skin diseases, Removes pain in joint, Urinary tract infection.

⁷ (Nagare et al.,2015)

⁸ (Lalu Prasad Yadav)

⁹ (Bharti Jha)

¹⁰ (Junaid Niazi)

¹¹ (Jitendra Kumar Tak)

¹² (NAGARE ET AL.,2015)



TABLE 3: PHARMACOLOGICAL ACTIVITIES OF COCCINIA GRANDIS

Sr NO	PLANT PARTS	PHARMACOLOGICAL ACTIVITIY	MECHANISM OF ACTION	REFERENCE
1	Leaves	Antibacterial activity	The crude extract showed a broad spectrum of antibacterial activity by inhibiting both the gram positive and gram negative groups	Sivaraj, A., Jenifa, B. P., Kavitha, M., Inbasekar, P., Senthilkumar, B., & Panneerselvam, A. (2011). Antibacterial activity of Coccinia grandis leaf extract on selective bacterial strains. <i>Journal of Applied Pharmaceutical Science</i> , (Issue), 120-123.
2	Leaves	Anthelmintic Activity	The extracts caused paralysis followed by death of all selected worms at the selected concentrations.	Dewanjee, S., Maiti, A., Kundu, M., & Mandal, S. C. (2007). Evaluation of anthelmintic activity of crude extracts of Diospyros peregrina, Coccinia grandis and Schima wallichii. <i>Dhaka University Journal of Pharmaceutical Sciences</i> , 6(2), 121-123.
3	Leaves	Anti-inflammatory	Effectiveness of extract in the early phase of inflammation suggests the inhibition of histamine and serotonin release.	Niazi, J., Singh, P., Bansal, Y., & Goel, R. K. (2009). Anti-inflammatory, analgesic and antipyretic activity of aqueous extract of fresh leaves of Coccinia indica. <i>Inflammopharmacology</i> , 17, 239-244.
4	Fruits	Antidiabetic Activity	Treatment with Coccinia grandis fruit extract in diabetic rats exhibited significant improvement in the pancreatic histoarchitecture leading to a normalization of the tissue structure, regeneration of pancreatic beta-cells and improved islet indicating a potential regenerative effect of Coccinia grandis on pancreatic tissues.	Jagannath, N. Antidiabetic Activity of Coccinia Grandis fruit extract in streptozotocin Induced diabetic rats.
5	Fruits	Antilithiatic Activity	The extract dose of 100 mg/kg also caused reduction of calcium, oxalates, phosphorus and creatinine in blood serum level the results were found statistically	Kumar, M., Alok, S., Kumar, S., & Verma, A. (2014). In-vivo study of antilithiatic activity on the fruits extracts of Coccinia indica (Wight & Arn.) ethylene glycol induced lithiatic in rats. <i>International Journal of Pharmacognosy</i> , 1(1),



			significant.	51-58.
6	Leaves	Antibacterial Activity	Out of six solvent extracts of <i>C. grandis</i> methanol and ethyl acetate, leaf extracts have shown the best antimicrobial activities compared to the rest of the four solvent extracts. Methanolic extract 1.56 mg/ml and 0.78 mg/ml was the MIC values for the respective plants.	Debasmita, D., Santosh, K. S., Smarita, L., Rajesh, K. M., Biswakanth, K., & Shakti, R. (2023). Evaluation of the antibacterial activity of <i>Coccinia grandis</i> , against bacteria isolated from chronic suppurative otitis media infection.
7	Leaves	Analgesic	The extract produced marked analgesic activity comparable to morphine at 300 mg/kg, which suggests the involvement of central mechanisms.	Niazi, J., Singh, P., Bansal, Y., & Goel, R. K. (2009). Anti-inflammatory, analgesic and antipyretic activity of aqueous extract of fresh leaves of <i>Coccinia indica</i> . <i>Inflammopharmacology</i> , 17, 239-244.
8	Leaves	Antipyretic	A significant reduction in hyperpyrexia in rats was also produced by all doses of extract with maximum effect at 300 mg/kg comparable to paracetamol.	Niazi, J., Singh, P., Bansal, Y., & Goel, R. K. (2009). Anti-inflammatory, analgesic and antipyretic activity of aqueous extract of fresh leaves of <i>Coccinia indica</i> . <i>Inflammopharmacology</i> , 17, 239-244.
9	Fruit & leaves	Anti oxidant	its action is on lipid peroxidation and to the enhancing effect on cellular antioxidant defense contributing to the protection against oxidative damage of various cells.	Sharma, A. K., Chaudhary, M., Kumar, R., Chauhan, B., Sharma, S., & Sharma, A. D. (2011). Antioxidant Activity of <i>Coccinia grandis</i> Fruits and Leaves. <i>Inventi Rapid: Ethnopharmacology</i> .
10	Unripe fruits	antioxidant, antiglycation, insulin secretory activities.	<i>C. grandis</i> extract exerted a dose dependent radical scavenging activity and exhibited a significant antiglycation potential. The extract also showed a significant insulinotrophic property with 1.28 and 1.71- fold increase in insulin release when compared to control at 0.25 and 0.50	Meenatchi, P., Purushothaman, A., & Maneemegalai, S. (2017). Antioxidant, antiglycation and insulinotrophic properties of <i>Coccinia grandis</i> (L.) in vitro: Possible role in prevention of diabetic complications. <i>Journal of Traditional and Complementary Medicine</i> , 7(1), 54-64.



			mg/mL, respectively.	
11	Fruits	Mouth Ulcer, wound healing	Topical application of gel at 20%w/w concentration showed significant reduction in carrageenan induced rat paw edema.	DEORE, P. (2017). Coccinia grandis fruit extract gel for the treatment of mouth ulcer along with associated wound and inflammation. <i>J. Res. Educ. Indian Med</i> , 23(1-2), 43-58.
12	methanol extract leaves	Antihyperglycemic and Antinociceptive Effects	The highest level of serum glucose reduction was observed with an extract dose of 400 mg per kg body weight, when serum glucose level was found to be reduced by 56.3%.	Sutradhar, B. K., Islam, M. J., Shoyeb, M. A., Khaleque, H. N., Sintaha, M., Noor, F. A., ... & Rahmatullah, M. (2011). An evaluation of antihyperglycemic and antinociceptive effects of crude methanol extract of Coccinia grandis (L.) J. Voigt.(Cucurbitaceae) leaves in Swiss albino mice. <i>Advances in Natural and Applied Sciences</i> , 5(1), 1-5.
13	Hydromet hanol leaves extract	Cataract	The highest level of serum glucose reduction was observed with an extract dose of 400 mg per kg body weight, when serum glucose level was found to be reduced by 56.3%.	Umamaheswari, M., & TK, C. (2008). Effect of the fractions of Coccinia grandis on naphthalene-induced cataractogenesis in rats. <i>International Journal of Biomedical and Pharmaceutical Sciences</i> , 2(1), 70-74.
14	Ethanollic extract of leaves	Antihyperlipidemic	Synchronous administration of ethanolic extract of C. grandis notably prevented the rise in serum total cholesterol, LDL-cholesterol, VLDL-cholesterol, triglycerides. There was a momentous decrease in body weight and increase in HDL-cholesterol was observed in C. grandis extract treated rats.	Hossain, M. F., Rahaman, M. A., Abdullah-Al-Mamun, H. K., Isalm, M. S., & Sumsuzzman, D. M. (2017). ANTIHYPERLIPIDEMIC ACTIVITY OF COCCINIA GRANDIS ON HIGH FAT DIET INDUCED WISTAR ALBINO RATS. <i>European Journal of Biomedical</i> , 4(05), 25-28.
	Ethanollic	antiulcer activity	The extract offered	Datchanamurty, B., Mythireyi, D.,



	leave extract		significant mucosal protection by reducing the ulcer index	&Divyashanthi, C. M. (2019). Evaluation of antiulcer activity of ethanolic leaf extract of <i>Coccinia grandis</i> in indomethacin induced gastric ulcer model. <i>International Journal of Basic & Clinical Pharmacology</i> , 8(4), 629.
15	Leaf extract	Wound Healing	The leaf extract protected the human fibroblasts and keratinocytes from hydrogen peroxide-induced oxidative stress by increasing cell survival rate by more than 20% in all test doses.	Namchaiw, P., Jaisin, Y., Niwaspragrit, C., Malaniyom, K., Auvuchanon, A., & Ratanachamnong, P. (2021). The leaf extract of <i>Coccinia grandis</i> (L.) Voigt accelerated in vitro wound healing by reducing oxidative stress injury. <i>Oxidative Medicine and Cellular Longevity</i> , 2021(1), 3963510.
16	Ethanol leaf extract	Antidyslipidemic	Oral administration with ethanolic extract at the dose of 500 mg/kg body weight for 7 days, in dyslipidemic hamsters resulted in significant lowering of plasma levels of TG, TC and Gly	Singh, G., Gupta, P., Rawat, P., Puri, A., Bhatia, G., & Maurya, R. (2007). Antidyslipidemic activity of polyprenol from <i>Coccinia grandis</i> in high-fat diet-fed hamster model. <i>Phytomedicine</i> , 14(12), 792-798.
17	Ethanolic extract of leaves	cholesterol lowering activity	<i>C. grandis</i> extract (25 mg/kg) also produced significant ($p < 0.05$) total cholesterol lowering and HDL increasing ($p < 0.05$)	Al-Amin, M. M., Uddin, M. M. N., Rizwan, A., & Islam, M. S. (2013). Effect of ethanol extract of <i>Coccinia grandis</i> Lin leaf on glucose and cholesterol lowering activity. <i>British Journal of Pharmaceutical Research</i> , 3(4), 1070-1078.
18	Alcoholic extract of fruit	Hepatoprotective Activity	the animal livers exhibited an almost normal architecture barring a little deformation of hepatocytes with pyknosis and clearing of cytoplasm	Vadivu, R., Krithika, A., Biplab, C., Dedeepya, P., Shoeb, N., & Lakshmi, K. S. (2008). Evaluation of hepatoprotective activity of the fruits of <i>Coccinia grandis</i> Linn. <i>International Journal of Health Research</i> , 1(3).
19	Methanol fruit extract	Antimicrobial activity	The activity was more pronounced on gram-positive organisms with <i>Staphylococcus aureus</i> being more susceptible and <i>Salmonella paratyphi</i>	Shaheen, S. Z., Bolla, K., Vasu, K., & Charya, M. S. (2009). Antimicrobial activity of the fruit extracts of <i>Coccinia indica</i> . <i>African Journal of Biotechnology</i> , 8(24).



			A being more resistant.	
20	Leaves extract	Antileishmanial	the increased production of Th1 cytokines (IL-12, TNF-a) with a concurrent decrease of Th2 cytokines (IL-10, TGF-b) was also observed in Cg-Extreated infected host macrophages.	Pramanik, A., Paik, D., Naskar, K., & Chakraborti, T. (2017). <i>Coccinia grandis</i> (L.) Voigt leaf extract exhibits antileishmanial effect through pro-inflammatory response: An in vitro study. <i>Current microbiology</i> , 74, 59-67.
21	Methanol leave extract	anticancer activity	Ethanollic extracts significantly reduced viable cell count and increased non viable cell count	Bhattacharya, B., Lalee, A., Mal, D. K., & Samanta, A. (2011). In-vivo and in-vitro anticancer activity of <i>Coccinia grandis</i> (L.) Voigt.(Family: Cucurbitaceae) on Swiss albino mice. <i>Journal of Pharmacy Research</i> , 4(3), 567-569.
22	Leave extract	Antimicrobial Activity	. Ethanol extract of leaves exhibited antimicrobial activity against biofilm producing strains UPEC 17 and 82, whereas the aqueous and acetone extracts showed antibacterial activity only against UPEC 57. Ethanol extract of leaves exhibited inhibitory action against ESBL producing UPEC 87 and 96, whereas the aqueous extract inhibited the growth of only UPEC 85	Poovendran, P., Vidhya, N., & Murugan, S. (2011). Antimicrobial activity of <i>Coccinia grandis</i> against biofilm and ESBL producing uropathogenic <i>E. coli</i> . <i>Global J Pharmacol</i> , 5(1), 23-26.
23	Leave extract	Antiproteolytic&leishmanicidal activity	Cg-ex showed appreciable inhibitory activity against trypsin and <i>L.donovani</i> serine proteases rather than chymotrypsin	Das, P., Paik, D., Pramanik, A., De, T., & Chakraborti, T. (2015). Antiproteolytic and leishmanicidal activity of <i>Coccinia grandis</i> (L.) Voigt leaf extract against <i>Leishmania donovani</i> promastigotes.
24	Hydromet hanolic leave extract	antioxidant activities	All the fractions showed effective Hdonoractivity, reducing power, free radical scavenging activity, metal chelating ability and inhibition of β -carotene bleaching.	Umamaheswari, M., & Chatterjee, T. K. (2008). In vitro antioxidant activities of the fractions of <i>Coccinia grandis</i> L. leaf extract. <i>African Journal of Traditional, Complementary and Alternative Medicines</i> , 5(1), 61-73.
25	Ethanollic	Visceral Leishmaniasis	Cg-LE stimulated	Lahiry, S., Das, A. K., Das, S. N.,



	leave extract		reactive oxygen species generation and apoptosis. Parasites infected macrophages showing enhanced nitric oxide production after Cg-LE treatment suggested the leishmanicidal activity of the leaf extract. Cg-LE treatment led to mitochondrial membrane damage and DNA fragmentation in promastigotes.	& Manna, M. (2018). Ethanolic leaf extract of <i>Coccinia grandis</i> is effective against both drug resistant and drug sensitive clinical isolates of Indian Kala-azar. <i>Journal of Parasitic Diseases</i> , 42, 433-441.
26	<i>Coccinia indica</i> aerial parts	antidepressant activity	The methanol extract significantly reduced the duration of immobility in FST at dose of 400 mg/kg without affecting locomotor activity in open field test, thus, confirmed its antidepressant activity, which was statistically equivalent to the standard drug	Randhawa, K., Kumar, D., Jamwal, A., & Kumar, S. (2015). Screening of antidepressant activity and estimation of quercetin from <i>Coccinia indica</i> using TLC densitometry. <i>Pharmaceutical biology</i> , 53(12), 1867-1874.
27	Ethanol extract of fruit	mast cell stabilizing, antianaphylactic and antihistaminic activity	ECGF at (100–150 mg·kg ⁻¹ , i.p.) significantly protected egg albumin induced degranulations of mast cells and caused reduction of blue dye leakage in passive cutaneous anaphylaxis in dose dependently. The treatment ECGF also inhibited clonidine induced catalepsy in dose dependent manner.	Taur, D. J., & Patil, R. Y. (2011). Mast cell stabilizing, antianaphylactic and antihistaminic activity of <i>Coccinia grandis</i> fruits in asthma. <i>Chinese Journal of Natural Medicines</i> , 9(5), 359-362.
28	Methanolic leaf and stem extract	Hepato-restorative Activity	by treating with crude methanolic extract of leaf and stem parts of <i>Coccinia grandis</i> and their corresponding calli (leaf callus and stem callus at 180mg/kg bw)	Yerramilli, V., Singh, M., Singh, I., Nagar, L., & Singh, J. (2024). Hepato-restorative Activity of Methanolic Extracts of <i>Coccinia grandis</i> L. Voigt. in CCl ₄ -Intoxicated Rats. <i>Pharmacognosy Journal</i> , 16(5).



			in terms of marked decrease in CCl ₄ - increased SGOT (Serum glutamic oxaloacetic transaminase), SGPT (Serum glutamic pyruvic transaminase), ALP (Alkaline phosphatase), TB (Total bilirubin) and rise in TP (Total protein) compared to untreated control group.	
29	Aqueous Extract of Leaves	Spasmolytic Activity	Extract possibly stimulates presynaptic cholinergic nerve endings to produce spasmodic response in rabbit jejunum smooth muscle	Farrukh, U., Rizwani, G. H., & Zahid, H. (2016). Spasmolytic Activity of the Aqueous Extract of Leaves of <i>Coccinia grandis</i> L. in Rabbit Smooth Muscles. <i>MADINAT AL-HIKMAH</i> , 59(3), 45.
30	Ethanol leave extract	hepatoprotective activity	The ethanol extract of <i>C. grandis</i> reduced the serum activities caused by Paracetamol and CCl ₄ .	Kundu, M., Mazumder, R., & Kushwaha, M. D. (2012). Evaluation of hepatoprotective activity of ethanol extract of <i>Coccinia grandis</i> (L.) Voigt. leaves on experimental rats by acute and chronic models. <i>Oriental pharmacy and experimental medicine</i> , 12, 93-97.

II. CONCLUSION

For study of *coccinia grandis* pharmacological activity different part of the *coccinia grandis* plant were used in different ailments to see if it possess the activity designated. This review highlight the pharmacological activities of *coccinia grandis* plant belonging to the family of cucurbitaceae. This studies shows that different part of *coccinia grandis* plant posses great activity but the leaf of *coccinia grandis* has exceptional medicinal properties compared to the other part of the plant. *Coccinia grandis* plant has been widely explore for its pharmacological activities and has lots of medicinal properties but more research needs to continue focusing and exploring more activity of the plant. this review article give insight on the *cocciniagrandis*, plantpart, chemical constituents, different model and approach done on different animals and organism to explore its activity.

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