



# A Review On Morphology, Photochemistry, Medicinal Uses Of Argemone maxicana

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**Abstract-** Argemone maxicana belongs to the family papaveraceae . It's leaves and seeds are useful in the disease management. There are various phytochemicals in Argimone Mexicana like palmitic,linoleic and oleic acid. It is used to treat various disease like diabetes, malaria, fever, etc.It is one of the most important antimicrobial agent.

**Key words-**Chemical study, medicinal plant,uses of Argemone maxicana.

## INTRODUCTION

Argemone maxicana Linn(Papaveraceae) is generally known as" Mexican prickly poppy' and Satyanashi' It occurs as wasteland weed in nearly every part of India. In numerous part it's reported as crop weed also. The rubric Argimone includes 12 species. According to Ayurveda the plant is used as diuretic, purgative and destroys worms. In Homoeopathic system of drug, the medicine prepared from this condiment is used to treat the problem caused by tape recording worm. The plant contains alkaloids as berberine. Protopine, sarguinarine, optisine, chelerytherine etc.(1)

Medicinal plants are of noble worthiness to humanity. They're nature's offering human being to regulate a sickness free healthy life. This performance is necessary part in conserving our health.(2) Medicinal plant are considerably serviceable and economically needed. The receive

dynamic phytoconstituents that are used in the treatment of various human ailments.(3)

Argemone maxicana L( Papaveraceae), generally known as Prickly Poppy in English and Premathandu in Tamil set up in Mexico and now has extensively naturalized In the United States, India, Bangladesh and Ethiopia. It occurs as wasteland weed in nearly every part of India.(4)

The plant prefers light sandy soils, requires well-drained soil and can grow in nutritionally poor soil and also prefers acid, neutral and basic (alkaline) soils.(5)

Medicinal plant can be used dated back to ancient times when these were the only dependable source of treatment of any disease.

Use of plant as drug has been taken into practice since periods in literatures like Ayurveda, Siddha and Unani. Each and every part of a plant has some curative property for any particular disease that could be thought of . According to WHO more than 60 percent of population still depends on plant as their primary source of treatment specially the tribal population people living in villages or rural area and other enthusiasts who found this dependence on natural sources much beneficial in terms of side effects.

It's a prickly, glabrous, branching herb with yellow juice and showy yellow flowers. The Sanskrit name Svarnakshiri is given because of the yellow juice.

The height of the plant varies between 60-90 cm, Leaves are thistle like. Stem clasping: Oblong, sinuately spinous and nodes are white.

*Argemone Mexicana* is considered as an important medicinal plant in India, the yellow juice, which exudes when the plant is injured, has long been used in India as traditional drug for dropsy, hostility, ophthalmia, scabies and cutaneous affections. (6,7) farther with enhancement in technology and preface of in vitro and in vivo trials certain activities have also been studied exhibited by the plant part like anti- HIV, anti-malarial, anti-cancerous, cytotoxicity etc. Active Phytochemicals have been reported from different part of the plant that are responsible for the curative responses. They include alkaloids like berberine, chelerythrine, sargurinin, adipose acids like palmitic acid, oleic acid, etc.

Leaves and seeds are also reported to find application in maintaining normal blood pressure and cholesterol level in human body. Although it's poisonous in nature and seeds were been used with mustard seeds as an adulterant as observed cases of food adulteration. Traditionally the plant has been taken in use to cure fungal infections, skin complaint, ringworm hostility, by the folks

#### TAXONOMY

Kingdom	Plantae
Superdivision	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Magnoliidae
Order	Papaverales
Family	Papaveraceae
Genus	<i>Argemone</i>
Species	<i>Argemone mexicana</i>



#### MORPHOLOGY

It's a spiky, glabrous, branched herb with spectacular yellow flowers and yellow juice. This plant is between 0.3 and 0.12 meters tall, and its leaves have thistle like dimensions. Oblong, sinuate pinnatifid, clasping, and spinous stem. White nodes are seen. Yellow, terminal flowers range in periphery from 2.5 to 5.0 cm. Fruits are oblong, elliptical capsules that are thorny. There are numerous, globose, netted, brownish-black seeds. Tri-tetraporate makes up pollen (9)

#### MICROSCOPY

The ensuing characteristics were seen under a microscope the presence of sparse anomocytic stomata, bounce grains, filaments, and colorful forms of xylem vessel Microscopy thickening. These come in four shapes scalariform, helical, annular, and reticulate. Chemo atomic examinations revealed the presence of cellulose, bounce grains, lignin's, tannins, and polychromatic calcium oxalate chargers. The stems average humidity contents were 9.7 w/w. ash value was 8.5 w/w, acid- undecidable ash was 4.5 w/w, alcohol- answerable extractive was 8.0 w/w, and water- answerable extractive value was 15.0 w/w (10)

#### PHYTOCHEMICAL CONSTITUENT

Allocryptopine, coptisine, jatropine, columbamine, oxyberberine, and N-demethyloxysanguinarine are all Present in the whole plant, along with (-)- argenaxine, angoline, aronttianamide, and sanguinarine. Myristic, palmitic, oleic, and linoleic acids in seed oil painting. Berberine is the yellow juice. Mexicanol and mexicanic acid from Leaves. Dihydropalmitine Hydroxide, Berberine. Protopine. Ferulic, Tannin, Caffeic, Benzoic, and Cinnamic Acids are all set up in seeds, Protumexicine, mexitin, 8-methoxysanguinarine, 13-oxoprotopine, rutin, quercitrin, and eriodictyol are all set up in leaves. (11)

#### PHARMACOLOGICAL ACTION

##### 1. Antimalarial Activity

The chloroquine-resistant K1 strain of *Plasmodium falciparum* was discovered to be resistant to an aqueous extract of the serial portions of the *Argemone mexicana* plant, which has anti-parasite properties. (12)

## 2. Antibacterial Activity

Many reports have been carried out to investigate the antibacterial determinants of *A. mexicana* extracts. (13) Argemone mexicana leaves and seeds extracts showed considerable antibacterial activity. (14,15)

## 3. Healing Activity

Argemone mexicana fresh leaves were collected and individually tested for their ability to speed up the healing of wounds in rats with excision, incision, and dead space wound models. Compared to the reference standard and control group of animals, wound-healing activity with the Argemone mexicana chloroform, methanol, and aqueous extracts was dramatically improved by excision and incision. The methanol extract shown a strong healing effect against *Staphylococcus aureus* in the Infected wound model. (16)

## 4. Antidiabetic Activity

Aqueous extract of aerial parts of *A. mexicana* at a dose of 200 and 400 mg/kg body weight was reported to have hypoglycemic efficacy in alloxan-induced diabetic rats; significant reduction in blood glucose levels, plasma urea, creatinine, triacylglyceride, cholesterol values and recovery in body weight compared to diabetic control rats and the standard drug treated rats are found when treated with the aqueous extract at a dose of 400 mg/kg body weight. (17)

## 5. Antipyretic activity

The antipyretic potential showed by the two doses of drug extract might be attributed to the phytochemical constituents such as alkaloids, glycosides, flavonoids, phenolic compounds as tannins, saponins found in the water aqueous extract of Argemone mexicana leaves. (18,19,20) These components exert their biological action according to a mechanism of cyclooxygenase enzymes I and II inhibition (COX-1 and COX-2) which are implicated in the production of inflammation mediating agent prostaglandin (PGE) from arachidonic acid. (21)

## 6. Lousicidal activity

lousicidal efficacy of aqueous leaf extract of Argemone mexicana by conducting mortality and

repellency tests on tropicalis peters and found lousicidal activity with 73% mortality." (22)

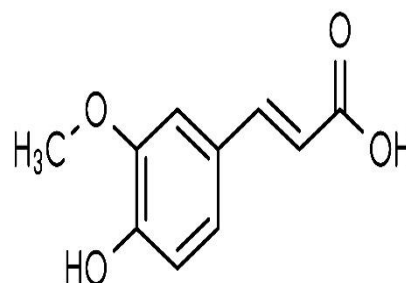
## 7. Antiplasmodial activity

By the research 20 species, with low IC<sub>50</sub> values of 9-43 mg dry extract / ml have been shown to possess antiplasmodial activity in all of them, Argemone Mexicana L. (Papavaraceae) also shown the same activity which is vary by varying extract dose per kg/ body wt. concentration: In vitro inhibition (%) of plant extracts against chloroquine susceptible strain of *P. falciparum*. The result shows: Mg dry extract / 80 mg part dry plant material 2.50, % Inhibition (mg: ml) according to dose i.e. 100 µg/ml; 50 µg/ml; 25 µg/ml; 12.5 µg/ml; and IC<sub>50</sub> µg/m. (18)

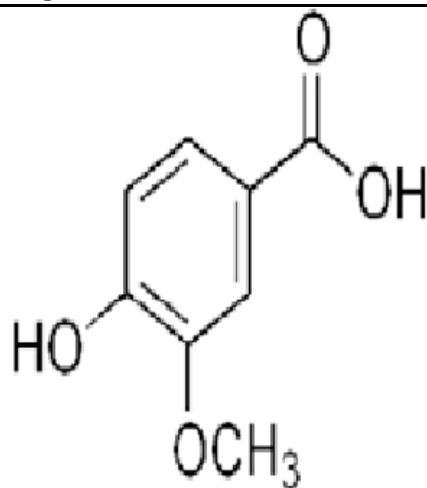
## 8. Antimicrobial activity

Stem and essential oil of *A. mexicana* was found to be good antimicrobial activity. The inhibition activity of plants extracts against the growth of microorganisms presence of antioxidants. Attributed to the presence of antioxidants. (24)

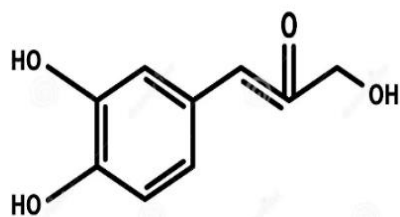
Chemical structure



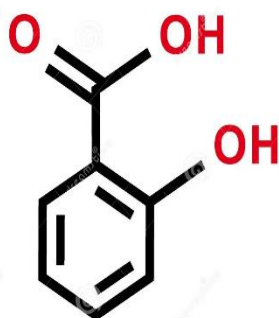
ferulic acid



Vanillic acid



CAFFEIC ACID



SALICYLIC ACID

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