RESEARCH PAPER | Biochemistry | Volume : 5 | Issue : 5 | May 2015 | ISSN - 2249-555X

Analysis of bioactive compounds in ethanol extracts Argemone mexicane plant seeds using GC-MS techniques.

KEYWORDS: Argemone mexicane, GC-MS Analysis, Phytocomponents.

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ABSTRACT *Nature created plant in the world of every cilment and there is cure every disease and man has to find it .The bioactive compound of Argemone mexicane seeds has been evaluated using GC-MS. The chemical composition of the extract of Argemone mexicane seed were investigated using Gas Chromatography –Mass spectrometry .The analysis was carried out with the methanol extracted of the dried plant seeds. This study result concluded that the A. Mexicana have a more phytoconstituents.*

Introduction:
Herbal plants produce and contain a variety of chemical substances with varied physiological effects. They are huge reservoir of various chemical substances with potential therapeutic properties [1]. Herbal plants are being increasingly utilized to treat a wide variety of clinical diseases [2]. Herbs have been used by all cultures throughout history and thus, herbal medicine is the oldest form of health care known to mankind. It was an integral part of the development of modern civilization. Many drugs commonly used today are of herbal origin. Higher plants as source of medicinal compound continue to play a dominant role in maintenance of human health since antiquities [3].

The primary benefit of using plant derived-medicine is that they are relatively safer than synthetic alternatives, offering profound therapeutic benefits and affordable treatment [4]. However, it must be noted that not all medicinal plants are safe for consumption in the crude form.

Herbalism is a traditional medicinal or folk medicinal practice based on the use of plants and plant extracts. Herbal medicines are popular remedies for diseases used by a vast majority of the world's population,This study mainly focused on the bioactive compound ethonal extract Argemone mexicane plant seeds.

The plant *Argemone mexicana* Linn belongs to the family papaveraceae is a widely distributed plant throughout the subtropical and tropical regions of the world. It is commonly known as 'Mexican prickly poppy' and 'Satyanashi' is a common name. It is an erect, prickly annual herb, up to 1.2 meter in height, naturalized throughout India up to an altitude of 1,500 meter.

Plant Description
Annual weedy herb.*Flowers/Fruit/Seeds:* Large yellow or rarely white flowers. A related species, rose or spiny prickly poppy (Argemone Mexicana), has white, lavender, or purple flowers. *Parts used:* Seeds, leaves, flowers. *Leaves & Stem:* Erect branching stem, prickly bristled and furnished with a yellow, milky juice. Leaves are broadly lanceolate, spiny toothed, and blotched or striped with white along the principle veins. *Flowering Season:* April to July *Distribution:* Native to tropical and subtropical America, this desert flower has become scattered as far north as Virginia, where it has escaped cultivation and grows in waste places.

Chemical constituent
Argemone mexicana seeds contain 22–36% of a pale yellow non-edible oil, called *argemone oil* or *katkar oil*, which contains the toxic alkaloids sanguinarine and dihydrosanguinarine. Four quaternary isoquinoline alkaloids, dehydrocorydalmine, jatrorrhizine, columbamine, and oxyberberine, have been isolated from the whole plant of *Argemone mexicana* (Singh, S.; Singh, T. D.; Singh, V. P.; Pandey, V. B. et al 2010) The seed pods secrete pale yellow latex when cut open. This argemone resin contains berberine and protopine.

Plant kingdom	
Kingdom	: *Plantae*
(unranked)	: *Anglosperms*
(unranked)	: *Eudicots*
Order	: *Ranunculales*
Family	: *Papaveraceae*
Genus	: *Argemone*
Species	: *A. Mexicana*
Tamil	: *Ponnumuttai*
English	: *Mexican poppy*

Collection of plant sample
The plant sample was collected from residential place of Kolunthampat village, Thiruvannamalai District, Tamilndu. During spring January. Authentication was carried out at the Department of Botanical Survey of India, (1667 BSI/SRC/5/23/2013-2014/Tech/Dat29.01.2014) Southern Regional Centre and Tamil 18 Nadu Agricultural University Campus in Coimbatore, where voucher specimens were deposited.

The seeds were initially washed with distilled water and dried on a paper towel in laboratory for 24 hours.

Preparation of Plant Extract
Seed of the plant samples were thoroughly washed with running tap water 2-3 times and then finally washed with distilled water followed by shade-dried for seven days and then dried in an oven below 50°C. The dried plant materials were then powdered using mixer and grinder. 30g of

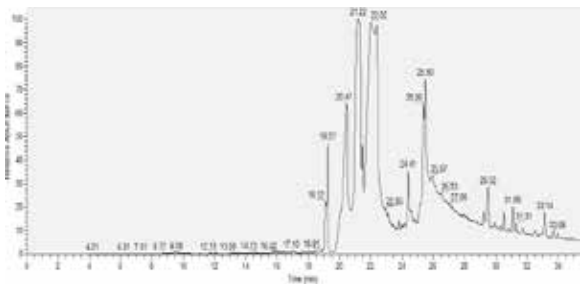
Volume : 5 | Issue : 5 | May 2015 | ISSN - 2249-555X

plant powder were extracted with 200ml of Methanol, for 72hrs by Soxhlet extractor. Then the extracts with solvents were evaporated using rotary evaporator. Extracts were the transferred into pre-weighed sample containers and were stored later was used for phytochemical screening, Antibacterial activity (A. Manjamalai and R.Sardar *et al*., 2010).

GC-MS Analysis of seed extracts in Argemone Mexicana

The methanol extract exhibited a better antibacterial activity than others. Hence GC-MS analysis was performed on methanol extract. The extracts used for phytochemical tests were concentrated by evaporation and stored at 4°C and used for GC-MS analysis.

GC-MS RESULT ANALYSIS OF *ARGEMONE MEXICANA* SEED EXTRACT



Presence of individual compounds in the given sample was analyzed using GC-MS/MS of Thermo Fisher make, ITQ900 model. One micro liter of the sample was run in a DB-1 fused silica capillary column with helium (1ml/min) as carrier gas, 250°C injector temperature, 280°C ion-source temperature and isothermal temperature 110°C (2 min), with an increase of 10°C/min to 200°C then 5°C/min to 280°C and 9 min to 280°C. The mass spectrum interpretation was performed using the library of National Institute Standard and Technology (NIST) and the compounds were identified

RESULTS AND DISCUSSION

The chemical composition of methanol wild plant extracts *Argemone mexicana* of was analyzed using GC-MS analysis. The identified compounds, are percentage are summarized in Tables.

S.NO	MOLECULAR-FORMULA	PEAK VALUE	CHEMICAL NAME
1	C11H22O2	19.27	2- methyldecanoic acid
2	C13H26O2	20.47	n- tridecanoic acid
3	C18H32O2	22.02	9,cis -12 octadecdinoic acid
4	C19H34O2	21.22	6,9 Octadecadienoate
5	C19H38O4	24.41	Palmitin
6	C18H31ClO	25.39	Linoleoyl chloride
7	C20H34O2	25.50	6,9,12 hexadecatrienoate
8	C24H24O4	29.52	Methoxyphenyl (acetone)
9	C29H50O	31.09	a-sitosterol
10	C15H20O3	33.14	Cyclohepta2H (b) furan

Conclusion

GC/MS results signified the presence of ten phytochemical constituents. The prevailing compounds were 2- methyldecanoic acid, n- tridecanoic acid, 9,cis -12 octadecdinoic acid, Palmitin, Linoleoyl chloride, 6,9,12 hexadecatrienoate, Methoxyphenyl (acetone), a-sitosterol, Cyclohepta2H (b) furan. platform for identification . The results of this study offer a platform of using *Argemone mexicana* seeds as herbal alternative for various diseases including diabetic, cardiovascular etc.

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