"FORMULATION, DEVELOPMENT AND EVALUATION OF HERBAL OINTMENT FROM MORINGA OLIFERA"

Abstract:-

Allopathic treatment for migraine is too costly also having too much side effect so focus on herbal medicine is very necessary. *Moringa oleifera* Lam (Moringaceae) is a highly valued plant, distributed in many countries of the tropics and subtropics. It has an impressive range of medicinal uses with high nutritional value. Different parts of this plant contain a profile of important minerals, and are a good source of protein, vitamins, β-carotene, amino acids and various phenolics. The Maringa plant provides a rich and rare combination of zeatin, quercetin, β-sit sterol, caffeoylquinic acid and kaempferol. In addition to its compelling water purifying powers and high nutritional value. Leaves of this plant collected from local area of Buldana and transported to lab for further study. After drying this plant material grinded into powder for further preformulation study. Formulation of herbal ointment was done on the basis of optimize batch obtained from preformulation study. Evaluation formulation was done by testing different parameters such as General appearance, Spreadability, PH, Diffusion study, Irritancy etc;

Keywords: *Moringa oleifera,* β-sit sterol, migraine, herbal medicine, herbal ointment.

1. **Introduction** :

Antibacterial activity is the ability of a substance to inhibit or kill bacterial cells. Different types of antibiotics and chemotherapeutic agents are being used in the treatment of one form of disease or the other. Most of these antibiotics were originally derived from micro-organisms while the chemotherapeutic agents are from plants. However, nowadays these antibiotics and chemotherapeutic agents are obtained by various synthetic processes (Reiner, 1984). Nepal is richly blessed with forests containing arrays of different herbs, shrubs and trees. The leaves, stems, bark and roots of these plants are being used by the local populace and people with thin income for incurring different types of ailments because of the inadequate medical facilities across the country (Sule and Agbabiaka, 2008).

Migraine is a mysterious disorder characterized by a pulsating headache, usually restricted to one side, which comes in attacks lasting for 4-48 hours. Some of the patients experience a more specific disturbance prior to headache, called 'aura' which usually has visual disturbance. Migraine attacks are episodic and resolve with time. Associated symptoms such as nausea vomiting and increased sensitivity to light (photophobia) and sound (phonophobia) occur during the headache phase.

The molecular pathophysiology of migraine is not fully understood and this has made the treatment and/or management of migraine difficult. Currently available drugs such as ergotamine and its derivatives, several synthetic drugs like NSAIDS, 5HT receptor agonists (Triptans), 5 HT2 receptor antagonists and even antiemetics are associated with various side effects and the treatment is based on trial and error method.

Herbal medicine, also called botanical medicine or phytomedicine, refers to the use of any plant's seeds, berries, roots, leaves, bark, or flowers for medicinal purposes. Long practiced outside of conventional medicine, herbalism is becoming more mainstream a up-to-date analysis and research show their value in the treatment and prevention of disease. Plants had been used for medicinal purposes long before recorded history. Indigenous cultures (African and Native American) used herbs in their healing rituals, while others developed traditional medical systems (Ayurveda and Traditional Chinese Medicine) in which herbal therapies were used systematically. Scientists found that people in different parts of the globe intended to use the same or similar plants for the same purposes. Recently, the World Health Organization estimated that 80% of people worldwide rely on herbal medicines for some aspect of their primary healthcare. For

most herbs, the specific ingredient that causes a therapeutic effect is not known.

1.2 Histroy of Moringa Olifira

Biological Sources

Botanical Name: *Moringa oleifera*

Family: Moringaceae

Common Name: Shewga, Shewga sheng,

Part used: Leaves, Seeds, Roots, Bark, etc

2. Materials and Methods:

Materials: Fresh leaves of *Moringa oleifera* was collected from local Area Buldana, Maharashtra and transported to laboratory, authenticated from Center for Biodiversity Jijamata Mahavidyalaya, Buldana, Maharashtra. The leaves were washed with tap water, rinsed well and dried at room temperature for about 24 hours in open air. The dried material was properly ground into powder. This powder material was seperated according to particle size with the help of sieves no; #44,60,80,85 to obtained different batches for further Preformulation Study.

Excipients:- Cholesterol, Petroleum Jelly, Cetyl alcohol, White soft paraffin etc. obtained from Research Lab Akola.

Plant Material

Fresh leaves of Moringa oleifera Lamm (Moringaceae) were collected and authenticated at Department of Botany Jija mata college, , Buldhana.

Extraction of Plant Material

The fresh leaves (1 kg) were crushed with little amount of water to obtain the leaf juice. The leaf juice was filtered through a muslin cloth and later through Whatman filter paper to obtain a greenish brown juice. The juice was shade dried and a little amount of absolute alcohol was added to the juice to prevent the growth of microorganisms. The dried leaf juice was collected as a brown colored powder (about 30 g). It was refluxed at 50°C for 5-6 hours with absolute alcohol. The alcohol fraction was separated from the residue and dried to obtain the alcoholic fraction of Moringa oleifera leaf juice (MOA). The weight of MOA was about 6 g

Antimicrobial activity procedure

Anti-microbial activity is a process of killing or inhibitng the growth of microbes. Antimicrobial agent either kills (bactericidal) thre microbes or inhibits the growth(bacteriostatic) of microbes. The standard bacterial test organisms were sub cultured freshly prepared nutrient agar and the extracted samples were inoculated into the culture using paper cup plate method.

Table no: Preformulation Study of Powder sample:

Formulation Table:

Sr.No.	Ingredients in gm Conc	Batch			
		F3 20%	F4 25%		
01	Moringa Oliefera	2gm	3gm	4gm	5gm
02	Eqaualeptous Oil	q.s	q.s	q.s	q.s
03	Base Material	q.s	q.s	q.s	q.s
Total (gm)	20	20	20	20	

Sr.No.	**Ingredients in gm Conc**	**Batch**			
		F1 10%	F2 15%	F3 20%	F4 25%
01	Moringa Oliefera	2gm	3gm	4gm	5gm
02	Eqaualeptous Oil	q.s	q.s	q.s	q.s
03	Base Material	q.s	q.s	q.s	q.s
	Total (gm)	20	20	20	20

Oinment Base :-

Sr no	Ingredients	Quantity taken
01)	Cholesterol	01 gm
02)	Petroleum jelly	01 gm
03)	Acetyl alcohol	01 gm
04)	White Soft Paraffin	17 gm
Total (gm)	20	

5. Evaluation of Formulation :

Prepared *punicagranatum* Ointment were evaluated for the following parameters.

a) Color Odor
b) Consistency
c) PH
d) Spreadability
e) Extrudability
f) Diffusion study
g) LOD
h) Solubility
i) Washability

j) Non irritancy Test
k) Stability study etc.

RESULT AND DISCUSSION :

Preformulation Study of Powder sample:

From above preformulation data powder from Sieve no:#60 shows acceptable angle of repose, Bulk density, Tapped density, Carr's index and Hausner's ratio, Flow rate, Moisture contents. The batch shows good data as compared with other batches. Therefore it was conclude that the Powder from Sieve no:#60 consider as a optimized batch.

Evaluation of Formulation:-

Sr.no:	Parameters	F_1	F_2	F_3	F_4
01	Colour	Green	Green	Green	Green
02	Odour	Characteristic	Characteristic	Characteristic	Characteristic
03	Consistency	Smooth	Smooth	Smooth	Smooth
04	PH	5.5	6.5	5.0	5.6
05	Spreadability(seconds)	7	9	8	7
06	Extrudability (gm)	0.5	0.4	0.9	0.8
07	Diffusion study (after 60 min)	0.4	0.5	0.8	0.9
08	Loss on drying	2o%	35%	35%	25%
09	Solubility	Boiling water, miscible with alcohol & ether.	Boiling water, miscible with alcohol & ether.	Boiling water, miscible with alcohol & ether.	Boiling water, miscible wi alcohol & ether.
10	Washability	Good	Good	Good	Good
11	Non irritancy	Non irritant	Non irritant	Non irritant	Non irritan
12	Stability study (20 C, 250 C, 370 C)	Stable	Stable	Stable	Stable

Discussion & Conclusion:-

Herbs plays major role in the treatment than the allopathic medicines because of less side effects, low cost and easy availability. The research work done on that basis and the selected plant for the formulation was proved for the therapeutic use of antimigraine. The *Morenga oleifera* leaves powder were used to formulate antimigraine & evaluated for physical parameters and standardize as per pharmacopoeial standards. Preformulation study and Physical Parameter revealed that all the values were within acceptable limit. .From the above evaluation parameters it can be concluded that overall batches the F1 batch show all parameter in acceptable limit. Therefore it is consider as a good Formulation.

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