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The Research Study on Individual and Combinatory Study of Moringa Oleifera (Drumsticks) and Flaxseeds

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ABSTRACT:
The Drumsticks (Moringaoleifera) have multiple medicinal uses for the eyes. It can cure eye irritation, redness of the eye, fungal infection and bacterial infection. Same with flaxseeds. Flaxseeds are recommended by the physician for the curing of eye infections, blurred vision of the eye, and redness of the eye and dryness of the eye. But the flaxseeds taken orally are inconvenient for digestion. So the form of ointment is convenient to use and effectively acts on the target site of the eye. The Moringaoleifera and flaxseeds both are good for treating eye infections or eye diseases.

KEY WORDS: Eye Ointment,Moringa oleifera, Flaxseeds

INTRODUCTION:

EYE OINTMENT:

Semisolid preparations based on oleaginous or water washable bases packed in collapsible tubes for easy transfer in to eye cavity by pressure.

These are prepared under aseptic conditions and packed in sterile collapsible tubes.

FORMULATION:

1) **Medicament:**water/oil water
2) **Ointment base:**

1. Sterilized by heating method
2. Free from irritation
3. Diffuse drug uniformly throughout
4. Melt at body temperature

3) **Eye diseases:**

5. Conjunctivitis
6. Dry eye syndrome
7. Styes

4) **Reason of eye diseases:**

8. Dust
9. Bacterial infection
10. Fungal infection
11. Temperature

Moringaoleifera:

Fig.no.1: Moringa oleifera

Moringaoleifera is also called 'The Miracle Tree' and Drumstick. It is a very popular backyard tree that grows to over nine meters high. The multiple parts of Moringaoleifera are useful for medicinal treatment. The flower's tender leaves and pods are eaten as vegetables. The leaves are rich in iron, which is highly recommended for expectant mothers.

Medicinal Uses:

1. Urinary Problems
2. Reduce Inflammation
3. Earaches
4. Wounds and eye diseases
5. As cardiac stimulant in Asthma.

Part use: Pods

Contains lipids,non-structural carbohydrates, protein, fiber, ash and various fatty acids like linoleic acid etc.

Phytoconstituents: Nitriles, Isothiocyanate, Thiocarbanates, O-ethyl-4-[(a-1-rhamnosyloxy)-benzyl]carbamate , Methyl-p-hydroxybenzoate and beta-sitosterol.

Flaxseeds:

Fig.no. 2: Flaxseeeds

Flaxseeds have been consumed by people for very long time due to its nutritional value and medicinal applications. It also known as Linumusitatissimum. The flaxseed oil is useful for our skin moisturizing, hair nourishment and growth.

Medicinal Uses:

1. Helps with dry eyes syndrome
2. Promote heart health
3. Lowers blood sugar
4. Reduce Inflammation
5. Reduce dark circles , itchiness , redness of eyes

Part use: seeds

Flaxseeds are contains Dietary fibers, Omega-3-fatty acid including alpha-linolenic acid. It also contains phytoestrogens called lignans.

AIM AND OBJECTIVES:

Aim:

To formulate, evaluate and compare the individual and combinatory effect of Moringaoleifera (drumstick) and flaxseeds.

Objectives:

1. Prevent the growth and reproduction of micro-organisms.
2. Apply treatment on the target site.
3. Comparing the effect of formulation for better therapeutic activities.
4. Prepare a better option for eye disease treatment in the form of ointment.
5. Using herbal products or APIs to avoid side.

➢ NEED OF INVESTIGATION:

- The Ophthalmic formulation are useful or come in the direct contact of the eye. The eye is a most sensitive organ. Therefore the chemicals may cause the side effects which may reflects the toxic effect which may cause the blurry vision, irritation of eyes, redness of eye. Because of this the herbal material are might be a better option for it.
- The physicians may suggest the oil of linseeds or flaxseeds, the fluid which is made from the extraction of leaves of drumstick plant.
- But the drumstick pods also have the antifungal and antimicrobial activities which may effective against the eye irritation, redness of eye, blurry vision.
- **Rich in Vitamin A**: Drumsticks pods are a rich source of vitamin A, which plays a crucial role in maintaining healthy eyes. Vitamin A is essential for good vision and helps prevent eye conditions like cataract**s** and dry eye**s**.
- **Antioxidants**: Drumsticks pods contain antioxidant**s** that help manage eye health. These compounds can help prevent age-related macular degeneration and vision loss. Additionally, they avert the thickening of capillary membranes, making them eye-friendly.
- The flaxseeds intake by oral route which might be cause the digestion problem, less knowledge about drug dose which might cause the toxic effect .
- For those reasons the ophthalmic formulation is the form of ointment is preferable. Which is easy and convenient compare to other forms.

- Because of flaxseeds and the drumstick have the property of curing the eye disease the comparing there additive and individual effect for the better therapeutic use.
- The flaxseeds are useful to make ointment spreadable and long lasting effect.
- The drumstick which is useful for the treatment of the redness and irritation of eyes.

MATERIAL AND METHOD:

Material:

Crude Drug: Drumstick (Moringaoleifera)

Part used **:** Pods

Family **:** Moringaceae

Species **:** Moringaoleifera Lam.

Chemical constituents: Phenolic acids, Isothiocyanates, Tannins, flavonoids, saponins.

Extraction process:

1. Drumstick are collected.
2. Then wash it properly and cut in small pieces.
3. Allow it to shaded air dry then grind it to make powdered form.
4. That powder souk it in ethanol for 48 hours.
5. Filter it and collect filtrate for the formulation.

METHOD:

Sr.no.	Ingredients used	Quantity given	Quantity taken	Purpose
1	Drumstick extract	10gm	1gm	API
2	Yellow soft paraffin	80gm	8gm	Moisturizing eye lids
3	Liquid paraffin	10gm	1gm	Softening
4	Wool fat	10gm	1gm	Produce transparent, lubricating film on eyeball surface

Table 1: Drumstick ointment formulation table

Material:

Crude material: Flaxseeds

Family **:** Linaceae

Species **:** Linumusitatissimum (Linn.)

Flaxseeds extract:

1. Firstly collect the flaxseeds and dry it at shaded region.
2. Then on drying grind it to make it in the powder form.
3. Add 10gm of flaxseeds in the 50ml of water.
4. Boil it till the solution become sticky.
5. Filter it and use filtrate for the further formulation.

Table 2: Flaxseed ointment formulation table

Sr.no.	Ingredients used	Quantity given	Quantity taken	Purpose
1	Flaxseeds extract	10gm	1gm	API
2	Yellow soft paraffin	80gm	8gm	Moisturizing eye lids
3	Liquid paraffin	10gm	1gm	Softening
4	Wool fat	10gm	1gm	Produce transparent, lubricating film on eyeball surface

Combinatory formulation of drumstick and flaxseeds:

Table 3: Drumstick and flaxseed combination ointment formulation table

Sr.no.	Ingredients used	Quantity given	Quantity taken	Purpose
1	Drumstick extract	05gm	0.5gm	API
2	Flaxseeds extract	05gm	0.5gm	API
3	Yellow soft paraffin	80gm	8gm	Moisturizing eye lids
4	Liquid paraffin	10gm	1gm	Softening
5	Wool fat	10gm	1gm	Produce transparent, lubricating film on eyeball surface

METHODOLOGY: Medication – Water/oil soluble

Ointment sterile base – It is an a combination of yellow soft paraffin, liquid paraffin and wool fat.

Formulation:

Wool fat + yellow soft paraffin

Melt

Add liquid paraffine

Coarse filter paper

Container

Sterilization

Add medicament

Pack in sterile container

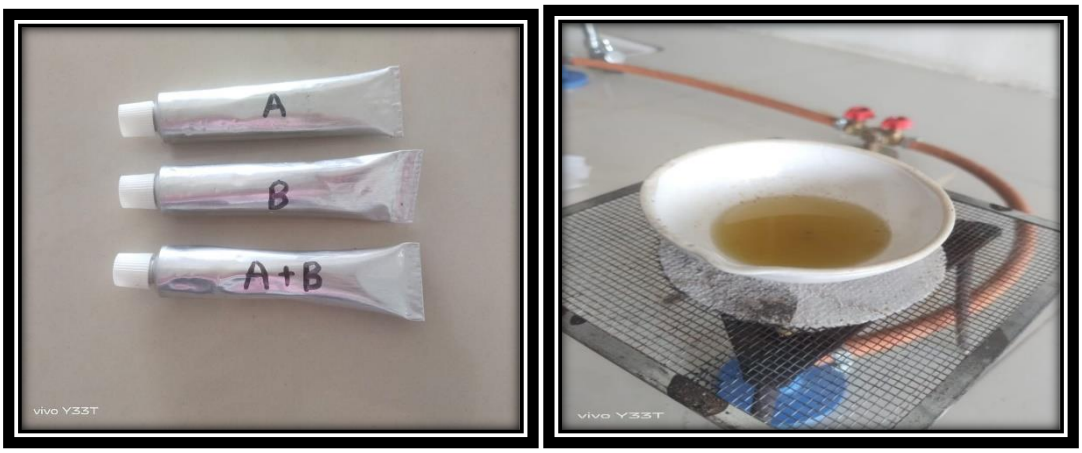


Fig no. 3: Formulation of ointment

DETERMINATION OF CALLIBRATION CURVE:

Drumstick:

The standard stock solution (Ethanolic Extract) of Drumstick, take 10ml of extract and dissolve it in 100 ml of water. Then take 1,2,3,4,5 ml of first dilution in volumetric flask and make up to 10 ml distilled water to get concentration 14,28,42,56,70 µg/ml respectively.

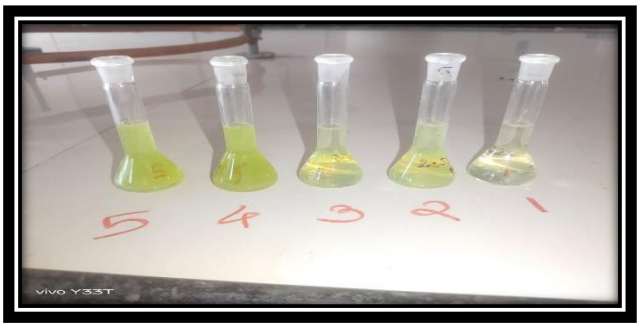


Fig no. 4: Drumstick test solution

Table 4: Absorbance of drumstick

Sr.No.	Concentration (µg/ml)	Absorbance
1	00	00
2	14	0.080
3	28	0.085
4	42	0.139
5	56	0.300
6	70	0.432

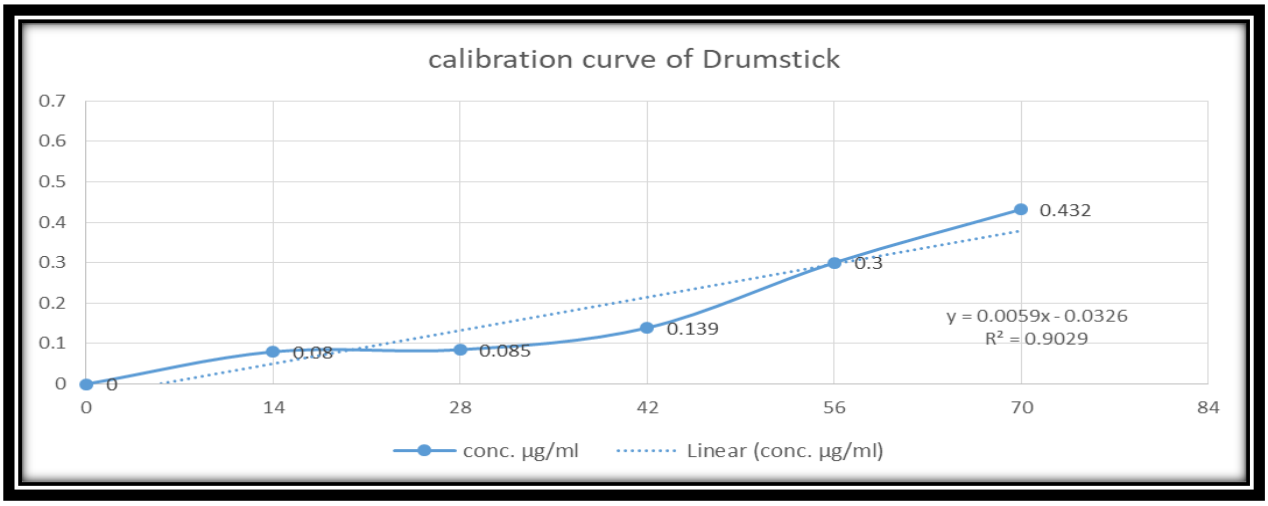


Fig no.5: Drumstick absorbance curve

Flaxseeds:

The standard stock solution (AqueousExtract) of Flaxseeds, take 10ml of extract and dissolve it in 100 ml of water. Then take 1,2,3,4,5 ml of first dilution in volumetric flask and make up to 10 ml distilled water to get concentration 5,10,15,20,25 µg/ml respectively.

Table no. 5: Absorbance of flaxseed solution

Sr.No.	Concentration (µg/ml)	Absorbance
1	00	00
2	14	0.127
3	28	0.147
4	42	0.378
5	56	0.504
6	70	0.633

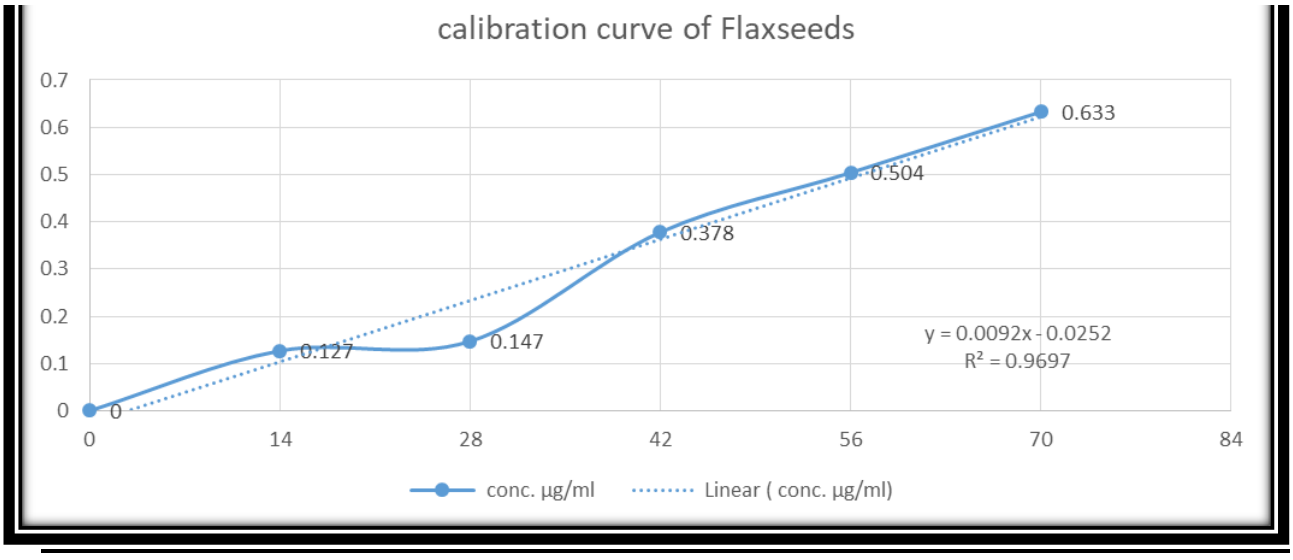


Fig no. 7: Calibration curve of flaxseed

Combination of Drumstick and flaxseeds extract:

The standard stock solution is made with addition of5 ml of Drumstick extract and 5ml of Flaxseeds extract (Hydro alcoholic Extract) mix well and dissolve it in 100 ml of water. Then take 1, 2,3,4,5 ml of first dilution in volumetric flask and make up to 10 ml distilled water.

Table 6: Absorbance of drumstick and flaxseed combination ointment formulation

Sr.No.	Concentration(µg/ml)	Absorbance
1	**00**	**00**
2	14	0.114
3	28	0.157
4	42	0.334
5	56	0.440
6	70	0.549

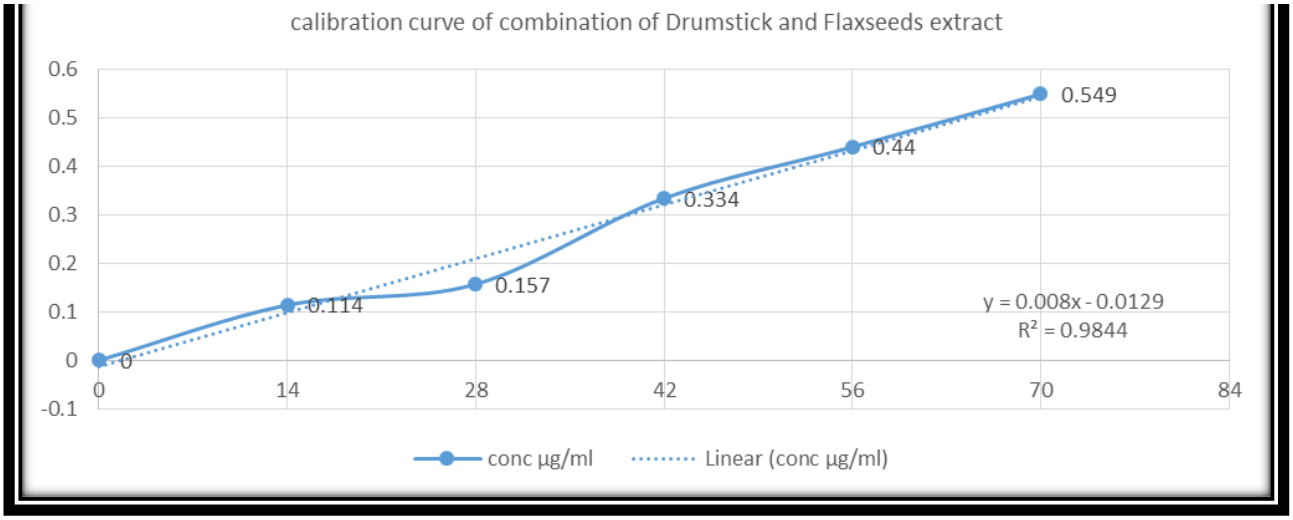


Fig no. 8: Calibration curve of drumstick and flaxseed combination solution

RESULT AND DISCUSSION:

PHYSICOCHEMICAL STUDY:

Table 7: Physicochemical test result

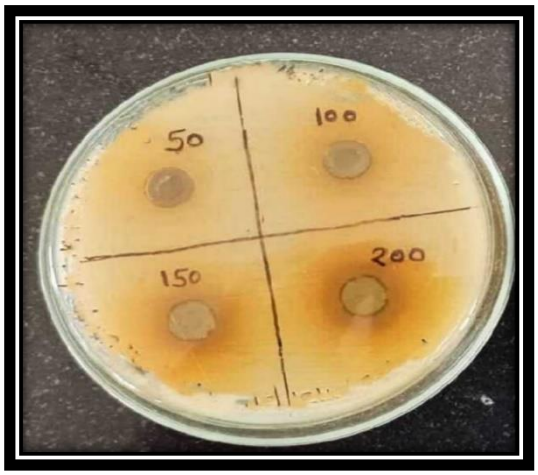
Parameter	Drumstick extract	Flaxseeds extract
Colour	Greenish	White translucent
Odor	Alcoholic	Characteristic
Taste	Bitter	Nutty
PH	6.3	7.3

EVALUATION OF ANTIMICROBIAL ACTIVITY OF EXTRACT:

The basic eye problems are

- Conjunctivitis
- Dry eye syndrome
- Styes

The Styes is a disease in which the red, painful lumps are present near the edge of eyelids. This is caused because of the bacterial infection. The bacteria which cause the Styes is **Staphylococcus aureus.**
For testing the effect of the Medicament the streak plate method was performed.
The result of this study was found to be **Ointment A** is more potent than Ointments B and Ointment C.



Ointment A

Ointment C

Fig no. 9: Microbial test of ointment A, B, C

EVALUATION OF OINTMENT:

Table 8: Evaluation of ointments by different parameters

PARAMETERS	Drumstick Ointment (A)	Flaxseeds Ointment (B)	Combination Ointment (A+B)=C
Colour	Yellow	Whitecolor	Pale cream color
Odour	Earthy smell	Nutty aroma	Characteristic
Nature	Soothing	Moisturizing	Softening
PH	7.3	7.5	7.4
Weight	10gm	10.05 gm	9.97gm
Leakage test	No leakage	No leakage	No leakage

Metal particles presence	Absent	Absent	Absent
Sterility testing	Free from microorganisms	Free from microorganisms	Free from microorganisms
Spreadability	Easily spreadable	Easily spreadable	Easily spreadable

CHEMICAL TESTS:

Table 9: Chemical test with their results

Sr.No.	Reagent used	Detection	Observation
1	Millions reagent	Protein	Absent
2	Molisch reagent	Carbohydrates	Present
3	Saliwanoff reagent	Sensitivity check	Absent
4	Bromine water	Unsaturated compounds	Present
5	Ferric chloride	Phenolic contents	Present

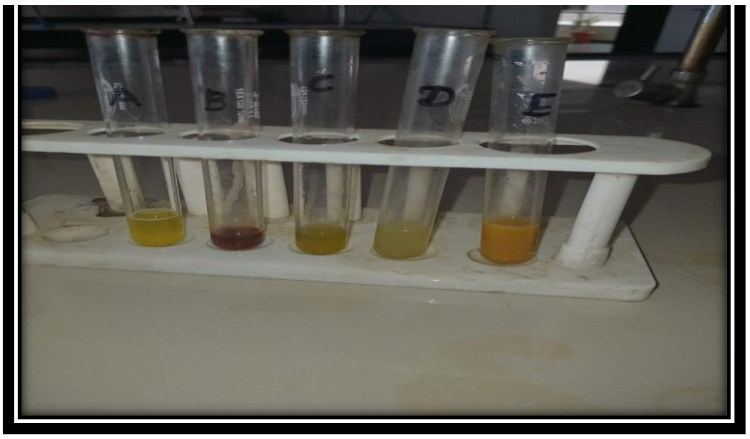


Fig no. 10: Chemical tests observation

CONCLUSION:

- The extract of drumstick or Moringa oleifera, Flaxseeds and the combination of both are applied in Petri plate of culture media to see their effect and the eye ointment was formulated, evaluated successfully according to their effect.
- According to their comparison report or results, we observed that the drumstick shows effects on the bacterial infection which is caused by staphylococcus areas.
- According to their properties, it is compatible and safe for human use

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