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Formulation And Evaluation Of Polyherbal Anti Lice Shampoo

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ABSTRACT:-
Infection with head lice, or pediculus humunus Linnaeus. The only pediculus humunus capitis that influences human scalp. All ages are affected by head lice infestation, which are a global public health concern. So it's important to check a drug particularly one with herbal origin before using to treat head lice. Variety of alternative therapies, including as plant extracts and natural and synthetic oils, have been created as result of head lice infestation globally developing resistance to insecticides. The Phytochemical component found in medicinal plant allows them to be used in a variety of way. The most effective and convenient lice prevention product is shampoo. A unique composition is needed for anti lice shampoo. In this formulation Azadirachta indica seed oil (Neem), Annona squamosa seed extract (sitaphal) seed extract, Annona reticulata seed extract (Ramphal) seed extract, Pongamia pinnata (karanja) seed oil and Sapindus mukorossi (Reetha) fruit extract were used as an main ingredients for herbal anti lice shampoo. Acetagenin, found in annona reticulata and annona squamosa seed is useful for eliminating head lice (pediculus humunus Linnaeus). A bioactive compound with significant biological properties called karanjin is present in karanja seed oil. Neem (Azadirachta indica), which includes azadirachtin, a complex tetranortiterpenoid limonoid shown to be harmful to a wide range of agricultural and domestic insects including lice, is one of these natural products. Reetha has been placed as a popular herb in the list of herbs and minerals in Ayurveda and is used as an important ingredient in cleansers and shampoos. The primary goal of the research was to determine the Pediculicidal effect of plant extract at various concentration. The anti lice activity is tested by taking different concentration of extracts of Annona squamosa (sitaphal), Annona reticulata (Ramphal), Sapindus mukorossi (Reetha) and oil of Azadirachta indica (Neem), Pongamia pinnata (karanja) i.e. 10%, 20%, 30%, 40%, 50%. Herbal anti-lice shampoo works well as a pediculicide option for treating head lice since it is secure and efficient.

KEY WORDS:- herbal anti lice shampoo, anti lice activity**,** Azadirachta indica (Neem), Annona squamosa (sitaphal), Annona reticulata (Ramphal), Pongamia pinnata (karanja) and Sapindus mukorossi (Reetha).

I. INFORMATION:-

The manifestation of obligate ectoparasite is pediculosis capitis infection often known as head lice. The only pediculus humunus capitis that influences human scalp. All ages are affected by head lice infestation, which are a global public health concern. So it's important to check a drug particularly one with herbal origin before using to treat head lice.

Variety of alternative therapies, including as plant extracts and natural and synthetic oils, have been created as result of head lice infestation globally developing resistance to insecticides. The Phytochemical component found in medicinal plant allows them to be used in a variety of way. Plant extract and anti head lice properties can be help women and children naturally avoid head lice. The use of an anti head lice shampoo can cure head lice. The most effective and convenient lice prevention product is shampoo. A unique composition is needed for anti lice shampoo. The herbal shampoo anti lice is made from Azadirachta indica (Neem) seed oil, Annona squamosa (sitaphal) seed extract , Annona reticulata (Ramphal) seed extract, and Sapindus mukorossi (Reetha) fruit extract used as main ingredients. The primary goal of the research was to determine the Pediculicidal effect of plant extract at various concentration. The anti lice activity is tested by taking different concentration of extracts of Annona squamosa (sitaphal), Annona reticulata (Ramphal), Sapindus mukorossi (Reetha) and oil of Azadirachta indica (Neem), Pongamia pinnata (karanja) i.e. 10%, 20%, 30%, 40%, 50%.

Acetagenin, found in annona reticulata and annona squamosa seed is useful for eliminating head lice (pediculus humunus Linnaeus). A bioactive compound with significant biological properties called karanjin is present in karanja seed oil. Neem (Azadirachta indica), which includes azadirachtin, a complex tetranortiterpenoid

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limonoid shown to be harmful to a wide range of agricultural and domestic insects including lice, is one of these natural products. Reetha has been placed as a popular herb in the list of herbs and minerals in Ayurveda and is used as an important ingredient in cleansers and shampoos. The seeds extract possess good antilice activity. Karangin pongamol, pongagalabrone, and pongapin, pinnatin and kanjone have been isolated from seeds.

Pediculosis:- There has long been a battle against lice. Since humans first encountered these ectoparasites over 9,000 years ago, head lice have persisted despite several contemporary treatments.
Louse:- Three members of the Anoplura order that infest humans are Pediculus capitis, Pediculus corporis, and Pthirus pubis in their adult stages.
Nit:- The louse's encapsulated egg is called nit. The viable nit is a tiny, translucent-to-white item that is adhered to the hair. He dead nit or hatched it, which is opaque and grey and also adhered to the hair. It takes 9–12 days for newly deposited eggs to hatch.
Nymph. a louse in development. Each of the three stages of development takes three days to complete. From hatching to death, the maximum lifetime is around 30 days.

Figure 1. life cycle of head lice

Pediculicide. an insect-killing substance. Respiratory paralysis typically results in mortality, despite the fact that the exact mode of action is frequently unknown.
Treatment:- The best treatment for Pediculosis capitis is pediculicides. In general, pediculicides shouldn't be used on children under the age of two. There are several pediculicides available, with varying degrees of efficacy depending on the agent and formulation. The ideal pediculicide need to be affordable, simple to apply, extremely effective, safe for humans to use, ecologically benign, and incapable of leading to the emergence of resistance.
HERBALSHAMPOO- Shampoo is a liquid or semi liquid preparation which is used for cleaning hair and scalp. Herbal shampoos are the cosmetic preparations that consists of traditional and ayurvedic herbs which are meant for cleansing the hair and scalp just like the regular shampoos. Shampoo is a fluid, emulsion, or suspension used to clean the hair and scalp. It is soap for cleaning the hair and scalp, usually in liquid or gel form.

PLANT PROFILE \ INGREDIENTS:-

In this formulation Azadirachta indica seed oil (Neem), Annona squamosa seed extract (sitaphal) seed extract, Annona reticulata seed extract (Ramphal) seed extract, Pongamia pinnata (karanja) seed oil and Sapindus mukorossi (Reetha) fruit extract were used as an main ingredients for herbal anti lice shampoo.

Azadirachta indica (Neem):-

Azadirectha indica initially sparked global interest due to its potential use as a non-toxic infection-control agent in agriculture. Indeed, azadirachtin, one of the most abundant compounds found in the neem plant, is a popular biopesticide. Various parts of the neem tree, however, have been used in traditional Indian medicine for millennia for their purported antipyretic, antacid, antiparasitic, antibacterial, antiviral, antidiabetic, contraceptive, antidermatitic, anticancer, anti-inflammatory, antioxidant, antifungal, dental, and other healing and protective properties. Almost every part of A. indica has been used as a home remedy for human illnesses. Furthermore, millions of people around the world use neem twigs as chewing sticks for dental hygiene.

Annona reticulata (Ramphal):-

Annona reticulata Linn. (Bullock'sheart) is a versatile tree and its fruits are edible. Parts of A. reticulata are used as source of medicine and also for industrial products. It possesses several medicinal properties such as anthelmintic, analgesic,anti-inflammatory, antipyretic, wound healing and cytotoxic effects. It is widely distributed with Phytochemicals like tannins, alkaloids, phenols, glycosides, flavonoids and steroids.

Annona squamosa (sitaphal):-

Annona squamosa L. also known as custard apple belongs to the genus Annona and the

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family Annonaceae. The custard apple (Annona squamosa) is commonly known as sitaphal in traditional language. Annona squamosa is reported to contain various chemical compounds. The seeds also show the presence of tannins, vitamin C, vitamin E and a higher content of amino acids. Extract obtained from various part of annona squamosa plant such as root, bark, stem, leaves, fruit, peel and seeds, have use in traditional pharmacological activity. Annona squamosa has various pharmacological activities such as an antibacterial activity, anti-diabetic activity, antitumor activity, anti-malarial activity, insecticidal activity, cytotoxic activity, anti oxidant activity, anti ulcer activity, anti head lice activity. custard apple leaves are used as anti microbial, custard seed powder is used to kill head-lice and fleas but care should be taken that the powder does not come in contact with the eyes as it causes ocular toxicity.

Pongamia pinnata (karanja):-

Pongamia pinnata, sometimes referred to known as karanja in Hindi, is a plant that has been utilized traditionally throughout India. The Different system of traditional medicines have be recognized P. Pinnata for the treatment of many human diseases and aliments. Various parts of karanja tree are used as anti bacterial, anti lice, anti oxidant, anti fungal, are digestive, laxative, antihelmintic and are good for diarrhea, leprosy, dyspepsia and cough. The seeds extract possess good antilice activity. Karangin pongamol, pongagalabrone, and pongapin, pinnatin and kanjone have been isolated from seeds.

Sapindus mukorossi (Reetha):-

Soapnut, or Sapindus mukorossi, is a member of the Sapinduceae family. It is a common chemical used to get rid of head lice. Its phytochemical makeup is comparable to that of the oil made from the seeds of Sapindus trifoliatus, which has positive benefits on the healing of skin wounds. The seed of Sapindus mukorossi exhibits no cyanogenic activity, making it a potential treatment option for skin wounds. One of the first therapeutic herbs to be cultivated was this one. Actually, botanists date it to the Vedic era, which was roughly 5000 years ago. It is typically used to get rid of dandruff and lice from the scalp. It is an excellent herb for skin conditions including psoriasis and dermatitis (red patches with white scales on top).

Sodium Lauryl Sulphate (Sodium dodecylsulfate) :- It is formed by combining sulfonic acid and dodecanol in a process known as esterification. The purpose of these sulfates is to create a lathering effect to remove oil and dirt from your hair. If your shampoo easily makes a lather in the shower, there's a good chance it contains sulfates.

HPMC:- It is used as a thickener and emulsifier in various food and cosmetic products, HPMC is especially useful in surfactant systems for its foam enhancing properties, helping with the formation of bubble structure, leading to richer, longer lasting lather. HPMC has a high tolerance for both salt and alcohol.

II. LITERATURE SURVEY:-

1)Ramedevi B et al,

The review article state herbal shampoo is cosmetic preparations which use of plant secondary metabolites for washing of hair and scalp just like regular shampoo.It alternative of synthetic shampoo available in market.Azardiracta indica and reetha extract were used as ingrident for poly herbal lice shampoo.The custured apple seed extract shows pediculus activity on hair.

2)Rishabha Malviya et,al,

The review article state natural herb like reetha , Azardiracta indica,Karanj oil are natural herb without any harmful effect.The herb extract contain in shampoo shows antilice activity.

Additional benefits are expected, e.g. conditioning, smoothing of the hair surface, good health of hair, e.g. hair free of dandruff, dirt, grease and lice and, above all, it is safety benefits are expected.

3) Vivek Singh Rajpoot et. al,

These article state various effects of Annona squamosa like antiparastic ,antispasmodic,antidiarrheal effect.Study investigated insecticidal activity of different extract of Annona squamosa seeds.

4) Muhamad Akram et,al.

In this article show the effect of karanj oil against head lice .It has anti bacterial properties that kill lice.It also prevents and treats parasitic hair and scalp infection caused by lice.In these also state that help to prevent dryness,breakage of hair.

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5)Junya Intaranongopal et,al.

In this article present study on Annona squamous and azardica Indica shows the effect on human head louse.

6)Vinayak M.Chavan et al.

Thses article state most shampoo avilable in market have some chemical and preservatives essence which can prove to detrimental later on.on other hand ,reetha is 100% natural and can use daily as natural cleanser and that only benefit and has no adverse effects.

7)Biba V. S. et al,A nticancer, antioxidant and antimicrobial activity of annonaceae family (2014)

The Mother Nature provided us with a huge number of flora and fauna. These flora and fauna shows so many charecteristic features such as their medicinal value. Medicinal plants are the oldest known healthcare agent. Their importance is still growing although it varies depending on the ethnological, medical and historical background of each place. Medicinal plants are also important for pharmacological research and drug development, not only when plant constituents are used directly as therapeutic agents, but also when they are used as basic materials for the synthesis of drugs or as a models for pharmacologically active compounds. Some of the natural medicinal plants are so common, that we used in our daily life without knowing their medicinal important. Annonaceae family is one of the large family showing so many characteristic features such as antitumor, anioxidant and antimicrobial activities.

AIM AND OBJECTIVE:-

AIM- the aim of this present formulation and evaluation herbal antilice shampoo

OBJECTIVE-The objective of the proposed study to formulative of evaluate antilice shampoo containing same indigineous medicinal plant specific objective aimed in the present study

1) To formulate and evaluate antilice shampoo

2) To formulate shampoo is compare with marketed antilice shampoo for its activity.

III. MATERIAL AND METHODS:-

The major aim of the current study was on creating a polyherbal shampoo that was safe, effective, cost-efficient, and effort-tabled, as well as comparing its physicochemical properties to those of commercially available synthetic shampoos for head lice activity made from recycled waste materials. Annona squamosa seeds Annona reticulata seeds with Azadiracta indica seed oil Pongamia pinnata seed oil. The pericarp of Sapindus mukorssi, also known as reeta, is recognised for its high saponin content and ability to form a thick lather when shaken with water.


Figure 2:- seeds and seed powder of neem


Figure 3 seeds and seed powder of karanja


Figure 4:-seeds and seed powder of sitaphal


Figure 5:-fruit and powder of reetha

Figure 6:- seeds and seed powder of ramphal

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Preparation of plant extract:-

100 grams of neem seeds, 100 grams karanja seed, 50 grams of sitaphal seeds, 50 grams of Ramphal seed, 25 grams of Reetha fruit, neem seeds powder subjected in soxhlet extractor for 4 hours with petroleum ether, karanja seeds powder subjected in soxhlet extractor for 4 hours with petrolwum ether, Sitaphal seeds powder subjected in soxhlet extractor for 4 hours with ethanol, then pure extract is obtained by evaporation process. Ramphal seeds powder subjected in soxhlet extractor for 4 hours with ethanol, then pure extract is obtained by evaporation process. Aqueous extracts of reeta was collected by boiling process. All the extracts were extracted separately.

Fugure 7 :- soxhlet extractor

COLLECTION OF HEAD LICE-

Under the guidance of our mentor for the project Prof.Mrs.Vrushali Baisane Mam we have collected head lice. We have collected head lice according to protocol given by our mentor, for collecting head lice we have made a specialized container in which we have to put the lice. The container was well closed and has some air cavities on its lid for survival of antilice And for creating habitual environment for lice we have put some hair lubricated with coconut oil in the container We have collected lice from different localities like slums, and from road side beggars etc. In return of that we also provide some refreshment (food) to them. At a time we have collected lice for our herbal antilice shampoo testing, during the collection of head lice we have taken precautions like wearing lab apron, gloves, mask and cap etc

METHOD FOR PREPRATION OF HERBAL ANTILICE SHAMPOO-

First of all we clean the glass apparatus which is to be use in formulation procedure according to the SOP. After that, we measured the quantity of ingredient according to the above reading by using spatula and butter paper on the well calibrated weighing balance. Our formulation have two phases, that is aqueous phase and oil phase according to that the formulation is done separately of aqueous phase and oil phase.4

AQUEOUS PHASE-:- First of all we have to mix all ingredients in a beaker i.e. HPMC, Sitaphal, Ramphal, Reetha, SLS, Glycerine according to the formula mention above. Add water quantity sufficient to the beaker having ingredient in it.

OIL PHASE:- We have to mix the Neem oil, Karanja oil according to the quantity given in above formula. After the formation of both separately the oil and the aqueous phase, mix both the aqueous phase and oil phase in the beaker. Adding tragacanth in the above mixture to avoid the phase separation. After formation of complete monophasic solution add q.s water up to 100ml. Add perfume agent(lavender) q.s to the solution.

FORMULATION:-

Table no.1-Formula for preparation of the herbal antilice shampoo

Ingredients	F1	F2	F3	F4	Role of ingredient
AQUEOUS PHASE					
HPMC	0.05mg	0.04mg	0.04mg	0.04mg	Foam Enhancer
Sitaphal	0.1mg	0.1mg	0.2mg	0.15mg	Antilice
Ramphal	0.1mg	0.1mg	0.2mg	0.1mg	Antilice
Reetha	2mg	2.5ml	2ml	2ml	Foaming agent
SLS	0.02mg	0.04mg	0.04mg	0.04mg	Surfactant
Glycerine	1ml	1ml	1ml	1ml	Humectants
OIL PHASE					

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Neem	0.2ml	0.2ml	0.1ml	0.1ml	Antibacterial and antilice
Karanja	0.2ml	0.2ml	0.1ml	0.1ml	Antilice
Tragacanth	0.023	-----	-----	-----	Emulsifying agent

EVALUATION-

Physical appearance:

The formulation prepared was evaluated for the clarity, color, odour and foam producing ability.

Determination of pH:

The pH 10% v/v shampoo solution in distilled water was measured by using pH paper at room temperature. Acidic pH <7 Neutral pH=7, basic pH > 7.

Dirt dispersion:

Two drops of shampoo were added in a large test tube contain 10 ml of distilled water. 1 drop of India ink was added; the test tube was stoppered and shakes it ten times. The amount of ink in the foam was estimated as None, Light, Moderate, or Heavy.

Cleaning action:

5 grams of wool yarn were placed in grease, after that it was placed in 200 ml. of water containing 1 gram of shampoo in a flask. Temperature of water was maintained at 350C. The flask was shaked for 4 minutes at the rate of 50 times a minute. The solution was removed and sample was taken out, dried and weighed. The amount of grease removed was calculated.

Foaming ability and foam stability:

Cylinder shake method was used for determining foaming ability. 10 ml of the 1% shampoo solution was put into a 10 ml graduated cylinder and covered the cylinder with hand and shaken for 10 times. The total volumes of the foam contents after 1 minute shaking were recorded. The foam volume was calculated only. Immediately after shaking the volume of foam at 1 minute intervals for 4 minutes were recorded.

Anti lice activity:

Anti-lice activity was measured by placing live lice in Petri dish containing 0.5 ml shampoo. The time of mortality of lice mortality is defined as lack of movement of gut and limbs and failure to respond when the legs were stroked with forceps) was checked and noted.

IV. RESULT-

After the extraction procedure of all ingredient i.e. Ramphal seed, sitaphal seed, neem and karanja seed we have to test the ingredients individually for their antilice activity according to the standard guidelines. For this we have to prepare the concentration accordingly for each and every ingredient with respect to 100ml solution (% of solution). We have taken the concentration in the manner of 10%, 20%, 30%, 40%, 50% etc, of each of the extract of the ingredients. For the testing of antilice activity we have taken transparent Petri dish for effective observation and a magnifying glass for counting of the dead lice in the given interval of time and also an ample amount of light for observation the Petri dish correctly, we also have put the white paper below the Petri dish.

TABEL no. 2- anti lice activity of plant extract and oil (mortality rate and concentration)

Concentration (percentage) %	**Mortality rate\ death time of head lice (minute)**			
	Sitaphal seed extract	**Karanj seed oil**	**Neem seed oil**	**Ramphal seed extract**
10%	11.3	18.15	14.3	15
20%	11.17	16	12.15	14.3
30%	11.17	12	10.4	12.15
40%	9.53	9	9.15	10.3
50%	9.15	6	7	9.3

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The concentration of different solution as shown in above table is tested accordingly in different interval of time. The effective concentration of each of the extract depends upon the lesser time taken to kill all the lice .The effective concentration for the antilice activity for ramphal and sitaphal extract was in the range between 45-50% of the solution of the extract because in this concentration both the extract is taking lesser time to kill the lice i.e. 9.3 and 9.15 min respectively. We have to use the 10% of the 50% extract solution of both the ramphal and sitaphal extract because they show some amount of ocular toxicity

In the case of neem and karanja oil they also showing effective antilice activity in their higher solution % i.e. ranging from 40-50% of the solution and the time taken by them to kill lice were around 7 and 6 min respectively.

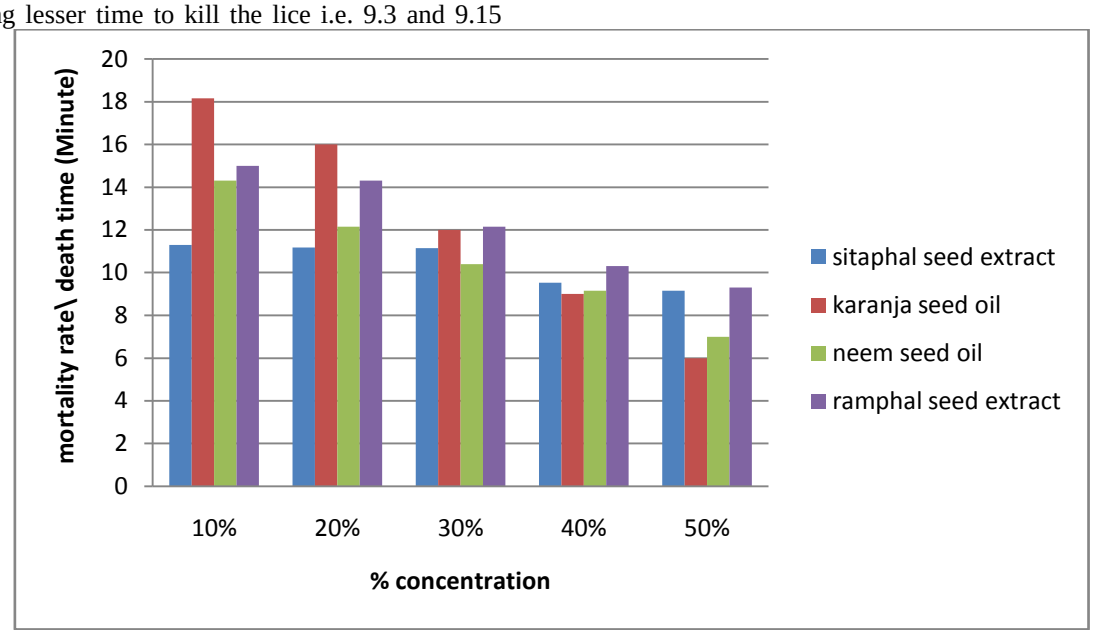

Figure 8:- Mortality rate of P. humanus capitis caused by plant extract and oil.

Other ingredient like HPMC, SLS, Glycerine, Reetha are used according to the standard concentration used in formulation of the antilice herbal shampoo.

Evaluation parameters-

1)Physical Appearance:-

A shampoo like any other cosmetic preparation should have good appealing physical appearance. The formulated herbal shampoo and marketed herbal shampoos were evaluated for physical characteristics such as color, odor, and transparency in Table-3. Our shampoo shows F1, F2, F3 light brown, transparent and good odor

2)pH determination:-

Most shampoos are formulated as either neutral or slightly alkaline to minimize the damage to hair the pH of shampoo also helps him minimizing irritation to eyes enhance the quality of hair and maintain the ecological balance to scalp. The pH tested of formulated shampoo was found to be nearly neutral.

3)Dirt Dispersion:-

Dirt dispersion is very vital tool for evolution of cleansing action of shampoo that causes the ink to concentrate in the foam are considered of poor quality because ink or dirt that stays in foam is difficult to rinse away and gets redeposit on the hair the dirt should stay in the water portion for achieving better cleaning action all shampoos concentrated the ink in the water portion ensures their satisfactory cleaning ability and actual effectiveness.

4)Foaming ability and foaming stability:-

Foaming or gathering is very important to the consumer and therefore it is considered as an important parameter in evaluation of shampoo herbal essences and formulated shampoo produced the foam volume (F1, F2, F3 and F4) the foam generated by formulated shampo for 2 minutes showing that their foam has good stability the higher forming property of formulated shampoo maybe due to soap nut

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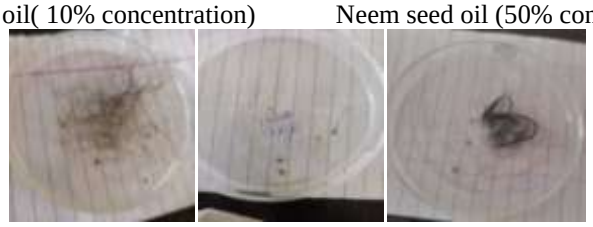
Table No – 3 Evaluation parameter for shampoo-

Sr. No.	Evaluation parameters	formulation			
		F1	F2	F3	F4
1	Physical appearance	Light brown	Light brown	Light brown	Light brown
2	pH	7	6	6	6
3	Dirt dispersion	Light foam	Light foam	Moderate foam	Light foam
4	Foam ability Foam volume(cm) 0 min 2 min	Good 1 cm 0.5	Good 1.3 cm 0.4	Good 1 cm 0.5	Better 2 cm 1.3
5	Cleansing action	Good	Better	Good	Good

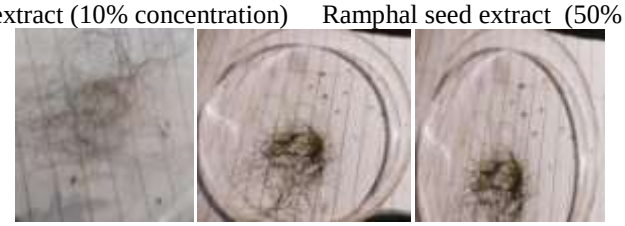
Testing of anti head lice activity:-

The anti lice activity is tested by taking different concentration of extracts of Annona squamosa (sitaphal), Annona reticulata (Ramphal), Sapindus mukorossi (Reetha) and oil of Azadirachta indica (Neem), Pongamia pinnata (karanja) i.e. 10%, 20%, 30%, 40%, 50% 1 ml, 2 ml, 3 ml, 4 ml, 5 ml. of extracts (sitaphal seed and Ramphal seed and oils (neem and karanja oil) separately dissolved in coconut oil. The same amount of solution was put in petri plate and spread in a thin layer. Head lice is collected from girl's hair were 10 head lice placed in petri plate containing extract and oils. Which were determined as mortality of lice, were counted every 5 minutes until the all were dead.

Neem seed oil(10% concentration) Neem seed oil (50% concentration)



Ramphal seed extract (10% concentration) Ramphal seed extract (50% concentration)



Karanja seed oil (10% concentration) karanja seed oil (50% concentration)
Sitaphal seed extract (10% concentration) Sitaphal seed extract (50% concentration)

Figure 9:- antilice activity of extracts and oils at different concentration.

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ANTILICE ACTIVITY OF PREPARED FORMULATION

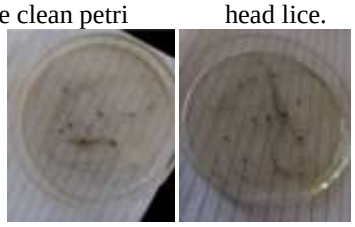
Our formulation F1, F2, F3, F4 having antilice property and is effective in the testing of mortality of the lice other than the synthetic antilice shampoo. Our shampoo having natural ingredient i.e. Ramphal and Sitaphal seed extract which is highly effective against the lice because they having acetogenin in seed extract which is effective against lice and also neem and karanja showing antilice and antibacterial activity as well

F1 F2 F3 F4

Fig No. 10 -Anti lice activity of prepareation

Comparative study of formulated shampoo and marketed shampoo

After collected specimen (Head lice, just before the experiment because head lice need human scalp for their survival, they can only live for 28 to 48 hours). The first petri plate contains diluted formulated shampoo. The second petri plate contain diluted marketed shampoo. Take clean petri plates and add 10 head lice for each petri plates, after this add 2 ml of diluted formulated shmpoo to one Petri plates and add 2 ml of diluted marketed shampoo to other petri plate contained 10 head lice. Observe petri plates after certain time intervels. The comparative study between formulated and marketed shampoo shows same result against the head lice.



1)Formulated shampoo 2) Mediker shampoo

Figure no 11:- Comparitive study of antilice shampoo

V. DISCUSSION :-

The formulation of antilice herbal shampoo is basically contains almost all herbal ingredients except some synthetic additive agents. The ingredients we have used in our antilice shampoo preparation are having ample amount of antilice activity.

The Annona reticulata (ramphal) shows highest activity regarding antilice property, the seed of A. reticulata contains Acetogenin compound i.e. Squamocin which shows higher amount of antilice activity.

Similarly Annona squamosa (sitaphal) shows the same activity as shown by ramphal.

Other ingredient like neem (Azadirachta indica) and karanja (Milletia pinnata) extract both shows the antilice as well as antibacterial properties.

Our antilice herbal shampoos activity depends upon the ingredient which we have used. All ingredients plays important role in effectively of our antilice herbal shampoo, all equally important in our antilice herbal shampoo.

Our shampoos main feature is that it is preservative (parabens) free because the ingredient use in shampoo itself act as the preservatives (Neem) so it's the plus point of our shampoo.

Our shampoo is naturally stable and has effectiveness and potential to kill the lice, as natural product having importance nowadays so our shampoo can be the effective option in natural hair care product for the effective use against lice problem.

VI. CONCLUSION-

The main purpose behind this investigation was to develop a stable and functionally effective shampoo. this presence study was carried out with th aim of preparing the herbal antilice shampoo that provide antilice effect

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Herbal antilice shampoo was formulated with ethanolic extract and aqueous extract of medicinal plants that are commonly used for cleansing and antilice activity

To provide effective antilice activity the present study involves the use of Ramphal seed extract, sitaphal seed extract, neem seed oil, karanja seed oil and reetha seed extract for cleansing effect.

The present work focuses on the potential of herbal extract from cosmetic purpose. Hence we conclude that our herbal antilice shampoo shows effectively the antilice and cleansing properties to the hair

VII. FUTURE SCOPE-

After historical and present review, it is proposed that (Azadirachta indica) REVIEW ON AZADIRCTHA INDICA From the family Meliaceae possibly use in anti-lice, herbal cosmetics preparations for humans and anti-tick herbal veterinary formulations incorporation with other herbal ingredients.

After historical and present review it is proposed that Pongamia Pinnata (Karanji)of drug from the family Fabaceae possibly used in Antilice Herbal cosmetic preparation for humans and antitick herbal veterinary formulations incorporation with other herbal ingredients.

After historical and present review, it is proposed that Annona reticulata (Ramphal) Form the Annonaceae possibly use in anti-lice, herbal cosmetics preparations for humans and anti-tick herbal veterinary formulations incorporation with other herbal ingredients.

After historical and present review it is proposed that Annona squamosa from the family Annonaceae are possibly used in anti lice herbal cosmetic preparation for human and anti tick herbal veterinary formulation incorporation with other herbal ingredients

After historical and present review, it is proposed that Sapindus mukorossi from the family (sapindaceae) possibly used antilice herbal cosmetic prepration for humans and antilice herbal veterinary formulation incorporation with other herbal ingridients.

Antilice shampoo formulated and standardize can also be attempted novel and potential herbal formulation and indiginiuos plant for its antilice activity can be identified and documented and it is possible in the present study to develop shampoo for veterinary use.

REFERENCE-

[1]. Deeksha, Rishabha Malviya, Pramod K. Sharma, Dharmendra Singh, Akanksha Sharma, Formulation of Herbal Shampoo against Head Louse (Pediculus humanus capitis De Geer)2020

[2]. Ramdevi.B, Gangarao Battu, A holistic approach for formulation and evaluation of polyherbal shampoos, journal of pharmacognosy and phytochemistry, 2019

[3]. Patel I, Talathi A. Use of traditional Indian herbs for the formulation of shampoo and their comparative analysis. Int J Pharm Pharm Sci 2016; 8(3): 28-32.

[4]. Rahami, Nurhainu, saifudin zukhri, oktavia setyaningtyas, and nurul hidayati, Formulation of an antilice shampoo sour leaves extract (Annona muricata.L) journal of physics: conference series (2020).

[5]. Aathira E.P. And A.Suganthi, Phytochemical analysis and antilice activity of Azadirachta indica and Aegele marmelos (leaves) world journal of pharmaceutical research (2019).

[6]. Ramninder Kaur, Komalpreet Kaur, ' Sitaphal: Unexplored Therapeutic Potential, Asian Journal of research in Chemistry and Pharmaceutical Sciences.3(4), 2015, 129-141.

[7]. Jignesh Pathak, Pramit Kumar Patel, 'Identification of Phytochemicals from Seed Extract of Custard Apple, Annona squamosa, Bioscience Biotechnology Research Communications Vol. 14 No (1) Jan-Feb-March 2021 Pp 397-402

[8]. Chengyao Ma, Yayun Chen, Jianwei Chen, 'A Review on Annona squamosa L.: Phytochemicals and Biological Activities, The American Journal of Chinese Medicine, Vol. 45, No. 5, 1–32

[9]. Neeraj Kumari, Suraj Prakash, 'Review Seed Waste from Custard Apple (Annona squamosa L.): A Comprehensive Insight on Bioactive Compounds, Health Promoting Activity and Safety Profile, processes 2022, 10, 2019.

[10]. Chopra, R. N., Chopra, I. C, Handa, K. L. and Kapur, L. D. (eds), Indigenous Drugs of India, U.N. Dhur and Sons, Kolkata, 1958, pp.51-595.

[11]. Kirtikar, K. R. and Basu, B. D., in Medicinal Plants (eds Blatter, E., Cains, J.

F., Mhaskar, K. S.), Vivek Vihar, New Delhi, 1975, p.536.
[12]. Chatterjee, A. and Pakrashi, S. (eds), The Treatise on Indian Medicinal Plants, 1994, vol. 3, p. 76.
[13]. Vanna, G. S., Miracles of Neem Tree, Rasayan Pharmacy, New Delhi, 1976.
[14]. Chopra, R. N., Nayer, S. L. and Chopra, I. C., Glossary of Indian Medicinal Plants, CSIR, New Delhi, 1956.
[15]. Nirmal SA, Gaikwad SB, Dhasade VV, Dhikale RS, Kotkar PV, Dighe SS. Anthelmintic activity of Annona reticulata leaves. Res J Pharm Biol Chem Sci. 2010; 1:115e118.
[16]. Chavan MJ, Kolhe DR, Wakte PS, Shinde DB. Analgesic and anti-inflammatory activity of Kaur-16-en-19-oic acid from Annona reticulata L. Bark. Phytother Res. 2012;26:273e276.
[17]. Chavan MJ, Wakte PS, Shinde DB. Analgesic and anti-inflammatory activities of the sesquiterpene fraction from Annona reticulata L. Bark. Nat Prod Res. 2012; 26:1515e1518.
[18]. Hisham A, Sunitha C, Sreekala U, et al. Reticulacinone, an acetogenin from Annona reticulata. Phytochemistry. 1994; 35:1325e1329.
[19]. Suresh HM, Shivakumar B, Shivakumar SI. Phytochemical potential of Annona reticulata roots for antiproliferative activity on human Cancer cell lines. Adv Life Sci. 2012;2:1e4
[20]. Duval RA, Duret P, Lewin G, Peris E, Hocquemiller R. Semisynthesis and biological activity aminoacyl trimesters of squamocin, an annonaceous acetogenin. Bioorg Med Chem. 2005; 13:3773e3781.
[21]. Maeda U, Hara N, Fujimoto Y, Srivastava A, Gupta YK, Sahai M. N-fatty acyl tryptamines from Annona reticulata. Phytochemistry. 1993;34:1633e1635.
[22]. KV Usharani, Dhananjay Naik and RL Manjunatha Pongamia pinnata (L.)A review : Composition and advantages in agriculture Journal of Pharmacognosy and Phytochemistry 2019; 8(3): 2181-2187
[23]. Priyanka Pandey1, Dr. Amit Sharma2 research on A SURVEY ON PONGAMIA PINNATA (KARANJ) WITH TRADITIONAL, ECONOMICAL, MEDICINAL USE ©2019 JETIR February 2019, Volume 6, Issue