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Pharmacognostic Standardisation, Formulation & Evaluation of Wheat grass and *Vetiver Zizaniodes* skin cream

Awadh Narayan Maurya* and Tandon Manisha

RKDF College of Pharmacy, Bhopal.
Behind Hotel Mark, Hoshangabad Road (Narmadapuram Road), Jatkhedi, Misrod, Bhopal
SRK University, Bhopal, M.P.462-026, India

Abstract

The work aims to perform the Pharmacognostic study of the leaves of plant *Triticum aestivum* Linn., Family Poaceae, commonly known as 'Wheatgrass', and *Vetiveria zizanioides* (L.) Nash syn. *Chrysopogon zizanioides* (L.) Roberty or Vetiver (Family Poaceae). It is cultivated on large-scale, all-over India and also occasionally cultivated in gardens. For the present study, samples of wheatgrass leaves were collected over a specific period of nine days. Herbal formulations have growing demand in the world market and the plants have been reported in the literature having good anti-microbial, anti-oxidant and anti-inflammatory activity. In this study cream was formulated based using herbal extracts and its evaluation. The evaluations of the formulation were done on different parameters like pH, spreadability, stability etc. Formulation F1 showed good spreadability, good consistency, and homogeneity with good appearance, pH, and no evidence of phase separation and ease of removal. The formulation F1 shows no redness, edema, inflammation and irritation to the skin during irritancy studies. These studies suggest that the composition of extracts and the base of cream of F3 is more stable and safer, it may produce synergistic action. It can be concluded that a herbal cream without side effects having anti- oxidant property can be used as provision of a barrier to protect the skin and avoid aging of the skin.

Keywords: *Triticum aestivum, Vetiveria zizanioides,* Herbal Creamarameters.

***Correspondence Info:**
Mr. Awadh Narayan Maurya
RKDF College of Pharmacy, Bhopal.
Behind Hotel Mark, Hoshangabad Road (Narmadapuram Road), Jatkhedi, Misrod, Bhopal
SRK University, Bhopal, M.P.462-026, India
Email: aw2011maurya@gmail.com

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1. Introduction

Herbal formulations have growing demand in the world market and the plants have been reported in the literature having good anti- microbial, anti-oxidant and anti-inflammatory activity [1]. In this study cream was formulated based on the anti-oxidant potential of herbal extracts and its evaluation [2]. WHO defines traditional medicine "the health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being" [3]. In some Asian and African countries, 80% of the population depends on traditional medicine for primary health care [4]. In many developed countries, 70% to 80% of the population has used some form of alternative or complementary medicine (e.g. acupuncture) [5]. Herbal treatments are the most popular form of traditional medicine, and are highly lucrative in the international marketplace [6]. Annual revenues in Western Europe reached US$ 5 billion in 2003-2004 [7]. In China sales of products totaled US$ 14 billion in 2005. Herbal medicine revenue in Brazil was US$ 160 million in 2007 [8]. Over one-third of the population in developing countries lack access to essential medicines [9]. The provision of safe and effective TM/CAM therapies could become a critical tool to increase access to health care [10]. While China, the

Democratic People's Republic of Korea, the Republic of Korea and Vietnam have fully integrated traditional medicine into their health care systems, many countries are yet to collect and integrate standardized evidence on this type of health care [11]. 70 countries have a national regulation on herbal medicines but the legislative control of medicinal plants has not evolved around a structured model [12]. This is because medicinal products or herbs are defined differently in different countries and diverse approaches have been adopted with regard to licensing, dispensing, manufacturing and trading [13].

Vetiveria zizanioides (L.) Nash syn. *Chrysopogon zizanioides* (L.) Roberty or Vetiver (Family Poaceae) is a fast-growing perennial grass, commonly known as *Virana, Adhaya, Sevya* (Sanskrit), *Khasa, Bena, Khas* (Hindi), *Khas-khas, Vennaramula* (Bengali), *Sugandhivalo, Valo* (Gujrati), *Bala, Vala* (Marathi), *Ramacham, Lamajja* (Malayalam), *Vetiver, Vilamichaver* (Tamil), *Vetivelu, Vettiveru* (Telugu) [14]. The highly valued thick fibrous adventitious roots are aromatic in nature. This tufted grass grows throughout India's plains, ascending up to an elevation of 1200 m [15]. Though it originated in India, Vetiver is widely cultivated in tropical regions. It has been reported that almost all Vetiver grown worldwide are a single clone (same DNA) [16]. It is known to improve a person's breathing, lower their heart rate, and be a relaxant for the nervous system. It has also exhibited anti-inflammatory properties, controls diabetes, and is known to cure skin diseases [17]. The plant's root is also known as traditional herb for their cooling and diuretic activity. The root decoction is used as an analgesic, Anthelmintic, antipyretic, antioxidant and antituberculosis agent [18].

Scientific research is increasingly confirming what was known to our ancestors from experience [19]. While plants continued to provide us pleasure with their beauty (color and fragrance) and enhance the taste of our food by their flavor, we seemed to have become moreish. Young cereal plants were valued in ancient times [20]. It has been said that people in the ancient Middle East ate the green leaf tips of the wheat plant as a delicacy. Bottled, dehydrated cereal grass has been a popular food supplement for people in the United States since the early 1930s [21]. The work done here is a step forward in bringing a more detailed study of the drug and to be able to answer the hidden causes of remarkable drug achieving its activity from a food supplement to a more promising drug for many dreaded diseases [22]. Our literature review reveals that the plant *Triticum aestivum* Linn belonging to the family Poaceae can be used for different liver ailments, to help prevent cancer, tooth decay, skin problems such as eczema and psoriasis [23]. It is also claimed to reduce hair from graying, improves digestion, reduces high blood pressure as it enhances the capillaries, support the growth of *lactobacilli* and can remove heavy metals from the body [24].

2. Methodology

2.1 Plant Materials Collection and Authentication:

Matured roots of Vetiveria zizanioides and fresh leaves of ***Triticum aestivum*** were collected from natural habitat of Baruipur, South 24 pgs, West Bengal (22.3508°N 88.4171°E) on September 2021. Underground root portions (in tuft of bunch) from the peripheral shoot region were separated and authenticated (Voucher specimen no. CARI/Kol/RT-18) by Dr. M. N. Das, ex-scientist, Dept. of Pharmacognosy, Central Ayurveda Research Institute for Drug Development, Kolkata, West Bengal.

2.2 Preparation of Triticum aestivum powder:

The ninth day grass of Triticum aestivum was cultivated, collected and chopped with the help of knife. It was dried in shade and then powdered with a mechanical grinder. The powder was passed through sieve no.40 and stored in a labelled air tight container [25].

2.3 Plant Sample Processing of Vetiveria zizanioides:

The roots were washed with aqueous 70% (v/v) ethanol, and dried at an ambient temperature (24-27 °C). A small portion of the air-dried plant sample was used for macroscopic, organoleptic and anatomical (transverse section) studies, while the rest of the plant materials were shade dried and pulverized with a grinder (National SM 2000). The whole and powdered plant samples were stored at room temperature in airtight, light-resistant containers as per guidelines of Ayurvedic Pharmacopoeia of India [26]. The finely (sieved in 60# mesh) and coarsely powdered samples were used for powder analysis, physicochemical, phytochemical examinations according to the standard method [27].

Fig 1. Plant Photograph of Triticum aestivum and Vetiver Zizaniodes

2.4 Macroscopic studies:

The fresh herb was subjected to macroscopic studies which comprised of organoleptic characters of the drugs viz. colour, odour, appearance, leaves size, taste and texture.

2.5 Microscopic studies:

Qualitative microscopic evaluation was carried out by taking transverse and longitudinal sections of fresh leaves. Free hand sections of the fresh leaves were boiled with chloral hydrate to remove all the colouring matter. The sections were transferred and mounted (glycerine) on a slide and a cover slip was placed over it [28].

2.6 Physicochemical studies:

Physicochemical studies include ash value and extractive value to determine the quality and purity of the powder of plant of Triticum aestivum and of Vetiveria zizanioides**.**

2.6.1 Loss of Drying/ Moisture Content (Gravimetric determination)

Separately place about 1.0 gm of sample in an accurately weighed moisture disc. For estimations of loss of drying, it was dried at 105˚C for 5 hours in an oven, cooled in a desiccator for 30 minutes, and weighed without delay. The loss of weight was calculated as the content in mg per gm of air-dried material [29].

2.6.2 Determination of total Ash value

Incinerate 2gm. of powdered drug in a tarred silica dish at a temp. Not exceeding 450^0c until free from carbon. Cool and weigh. If a carbon free ash cannot be obtained in this way, exhaust the charred mass with hot water, collect the residue on an ash less filter paper, incinerate the residue and filter paper add the filtrate, evaporate to dryness and ignite at a temp. Not exceeding 450˚c. Calculate the % of ash with respect to the air-dried drug.

2.6.3 Determination of acid insoluble ash

Place the ash, as described earlier, in a silica dish, add 25ml. Hydrochloric acid (2 N), cover with a watch glass, and boil for 10 min. and allow cooling. Collect the insoluble matter on an ash less filter paper, wash with hot Distilled water until the filtrate is neutral, dry, ignited to dull redness, allow to cool in a desiccator and weigh. Repeat until the difference between two successive weighing is not more than .1 g. calculate the %of acid insoluble ash with reference to the air-dried drug.

2.6.4 Determination of Water insoluble ash

To silica dish containing the total ash, add 25ml. of water and boil for 15 min. collect the insoluble matter in ash less filter paper. Wash with hot water and ignite in a silica dish for 15min. at a temp. Not exceeding 450^0c. Subtract the weight of this residue from the weight of total ash. Calculate the value of water-soluble ash with reference to air dried drug.

2.6.5 Extractive Values

2.6.5.1 Water Soluble Extractive Value

5gm of powdered drug was accurately weighed and placed inside a glass Stoppard conical flask. It is then macerated with 100ml of chloroform water for 18hours. It was then filtered and about 25ml of filtrate was transferred into a China dish and was evaporated to dryness on a water bath. It was then dried to 105° C for 6hours, cooled and finally weighed.

Preliminary screening of phytochemicals is a valuable step, in the detection of bioactive principles present in medicinal plants and subsequently may lead to drug discovery and development. It refers to extraction , screening and identification of the medicinally active substances found in plants. The preliminary screening of the ethyl acetate, methanol and water extracts of plant powder of Fresh plant material of *Artemisia absinthium* were carried out using standard laboratory procedures to detect the presence of different secondary metabolites such as alkaloids, flavonoids, saponins, tannins, steroid glycosides, phenols, coumarins, reducing sugars , protein, fixed oils and fats.

2.7 Preparation of Cream base:

The six formulations of cream bases were prepared. Various ingredients were weighed accurately. Oil in water (O/W) emulsion-based cream (semisolid formulation) was formulated. The emulsifier and other oil soluble components were melted in a beaker (Part A) and heated to 75° C. The methyl paraban and glycerol was dissolved in required amount of water and heated to 75° C. When the temperature of both the phases was 75°C. The aqueous phase was added gradually into oily phase with continuous stirring until cooling of emulsifier took place, and left at room temperature to obtain the required product. The flavoring agent was added when it is hot to obtain cream base. The compositions of the cream base are given in table 1

Fig. 2 : Preparation of Cream

Table 1 : List of ingredients used to formulate base for herbal cream

S.No.	Ingredients	Used as
1.	Sodium Lauryl Sulphate (SLS)	Surfactant
2.	Cetyl alcohol	Emulsifying and solubilizing agent
3.	Sheabutter	Thickening agent
4.	Methyl paraban	Preservatives
5.	Triethanolamine	Emulsifying agent

Table 2 : Composition of herbal cream.

Ingredients	Formula % w/w
	F1
Cetyl alcohol	0.5gm
Sodium Lauryl Sulphate	0.5gm
Methyl paraban	0.025 gm
Triethanolamine	0.5 gm
Sheabutter	25 gm
Vetiveria zizanioides	1 ml
Triticum aestivum	1 ml

2.8 Evaluation of Cream

2.8.1 PH Measurement: To measure the pH, 1 g of each herbal cream was diluted with 9 ml of distilled water and then pH was checked using pH meter.[12,13]

2.8.2 Viscosity: The viscosity of each herbal cream was measured and compared before and after accelerated test by Brookfield Viscometer at 100 rpm, using spindle no 7.[12]

2.8.3 Dye solubility test:

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. If the disperse globules appear red the ground colourless. The cream is o/w type. The reverse condition occurs in w/o type cream i.e. the disperse globules appear colourless in the red ground.[12]

2.8.4 Spreadability:

Spreadability and layer thickness are the measure of consistency of the product. The lower plate holds the sample, while the upper plate, which weighs 42 g, exerts forces to the sample in the lower plate. One gram of moisturizer formulation was placed on the lower plate and the upper plate was place on the top of the sample. A constant force was generated by adding known weight on the upper plate. Each sample was tested at least three times at constant temperature and exerted weight and the mean values of spread surface area on the lower plate were calculate.

2.8.5 Homogeneity: The formulations were tested for the homogeneity by visual appearance and by touch.

2.8.6 Appearance: The appearance of the cream was judged by its color, pearlscence and roughness and graded.

After Feel: Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was checked.

Types of smear: After application of cream, the type of film or smear formed on the skin were checked.

Removal: The ease of removal of the cream applied was examined by washing the applied part with tap water.

2.6.7 Saponification value:

Saponification value, acid value and nonvolatile % are determined as per Indian Pharmacopoeia (I.P.).[13] Higher the saponification value and acid value, lesser is thermal stability and more is the microbial count. Saponification values are highly significant in the making of soap. It is important that the saponification value is just right. If it is too high, the soap might contain too much alkali even though there is sufficient soapiness; so, it would react with skin. If the saponification value is too small, the fatty acid salts will not be sufficient enough to remove or saponify the fat or oil, leading to less soapiness. The saponification value is the number of milligrams of potassium hydroxide necessary to neutralize the free acids and to saponify the esters present in 1 g of the substance. Two grams of each formulation was accurately weighed and introduced into a 200 ml flask of borosilicate glass fitted with a reflux condenser. Then 25 ml of 0.5 M ethanolic potassium hydroxide and a little pumice powder were added to it and boiled under reflux on a water bath for 30 minutes. This is followed by the addition of 1 ml of phenolphthalein solution and the solution is titrated immediately with 0.5 M hydrochloric acid ("*an*" ml). The operation was repeated by omitting the substance being examined ("b" ml).[13,19-25] The saponification value was calculated from the expression:

Saponification value = 28.05 (b − a)/w,

where w is the weight of the substance in grams.

2.6.8 Acid value: The acid value is the number which gives in milligrams the amount of potassium hydroxide necessary to neutralize the free acids present in 1 g of the substance. Five grams of the formulation being examined was accurately weighed and dissolved in 50 ml of a mixture of equal volumes of ethanol (95%) and ether, previously neutralized with 0.1 M potassium hydroxide to phenolphthalein solution. Then 1 ml of phenolphthalein solution was added and titrated with 0.1 M potassium hydroxide until the solution remains faintly pink after shaking for 30 seconds. The acid value was calculated from the expression.[13,19-25]

Acid value = 5.61 n/w

Where n = the number of ml of 0.1 M potassium hydroxide required and w = the weight in grams of the substance.

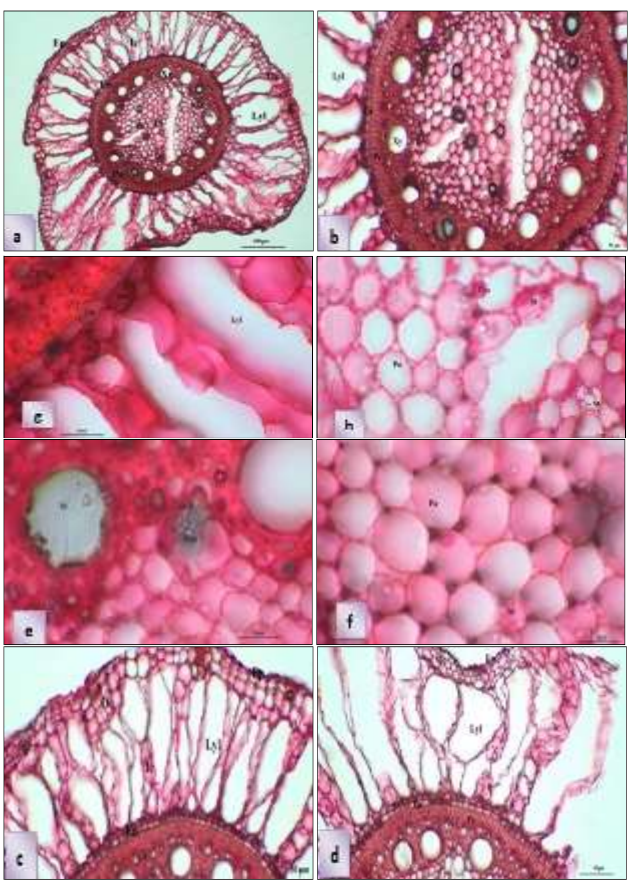
3. Results & Discussion

3.1 Macroscopic Study of Vetiveria zizanioides:

Root has neither stolon nor rhizome, present in tuft or clusters, grow downward finely structured and very strong, fragrant wiry, fibrous up to 2 mm in diameter, minute, longitudinally grooved; colour creamish to light yellow, short and splintery fracture, with strong aromatic odour and slightly bitter taste.

3.2 Microscopic Study of Vetiveria zizanioides:

The transverse sections (T.S.) of roots how from the periphery towards centre, the epidermis, the cortex, the vascular region, and central pith. Epidermis single layered, cortex parenchymatous, divided in outer and inner distinguished zone, outer cortex if 3 to 4 cell layered and inner cortex 5 to 9 thin cell layered, aerenchymatous interrupted by large lysigenous lacunae. Endodermis represented by inner cortical single parenchymatous layer with tangential and radial band like casparian strip. Few dark coloured oil cells are adjacent to the endodermis facing the inner cortex. The vascular region ring like comprising of metaxylem vessels and 4 to 6 cell layered pericyle consisting of sclereids and thick pericyclic fibres. The central pith region is parenchymatous with lots of starch grains and few cystolith **Fig. 2A to 2I**.



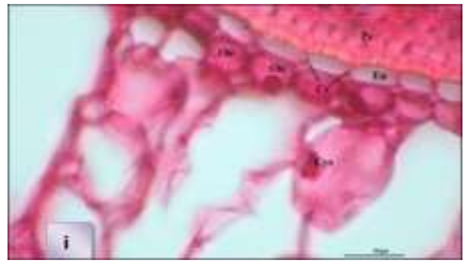


Fig. 3: Transverse Sections (T.S.) of roots of *Vetiveria zizanioides*

a.T.S. of root; b. T.S.through central zone of root; c. & d. T.S. through peripheral or cortical zone (enlarged view); e. &f. T.S. through vascular and central pith zone(enlarged view); g., h. &i. T.S. through Endodermis, inner cortex and pith (enlarged view); Ep: epidermis, Oc: outer cortex, Ic: inner cortex, Lyl: lysigenous lacunae, En: endodermis, Cs: casparian strip, Pe: pericycle, Pa: parenchyma, Xy: xylem, Pi: pith, St: starch, Cys: cystolith, Scl: sclereid, Olc: oil containing cell

3.3 Physicochemical Parameters:

Determination of the following physicochemical parameters were carried out - loss on drying, total ash, acid-insoluble ash, water-soluble ash, water-soluble extractive, alcohol-soluble extractive, hexane- soluble extractive, chloroform-soluble extractive, ethyl acetate-soluble extractive, acetone-soluble extractive **Table 3**. These parameters were determined according to the standard protocols as mentioned in Ayurvedic Pharmacopoeia of India/ WHO.

3.4 Preliminary Phytochemical Analysis:

The methanolic extract, obtained as described in the previous section was utilized for preliminary phytochemical testing ~2 ml of the extract being taken for each test. The results are given in **Table 4.**

Table 3: Physicochemical parameters of *Vetiveria zizanioides*

Parameters	Results (%, w/w)
Loss on drying (at 105°C)	10.5 ± 0.05
Total ash	1.67 ± 0.03
Acid-insoluble ash	0.42 ± 0.01
Water-soluble ash	0.36 ± 0.01
Water-soluble extractive	8.17 ± 0.07
Alcohol-soluble extractive	6.28 ± 0.02
Hexane-soluble extractive	0.22 ± 0.01
Chloroform-soluble extractive	1.24 ± 0.02
Ethylacetate-soluble extractive	0.6 ± 0.03
Methanol-soluble extractive	1.4 ± 0.03

Table 4: Preliminary Phytochemical tests of methanolic extracts of dried root of *Vetiveria zizanioides*

S. No.	Test/Reagent used	Observation
1a	Alkaloids - Mayer's test (in dil. HCl)	Positive
1b	Alkaloids - Dragendorff's test (in dil. HCl)	Positive
2a	Carbohydrates – Molisch's test	Negative
2b	Reducing sugars - Fehling's test	Negative
3	Flavonoids - Shinoda test	Positive
4	Terpenoids/ Steroids - (Liebermann-Burchardt Test)	Positive
5	$FeCl_3$ test for Phenolic compounds/ tannins	Positive
6	Glycoside (Acetic acid, $FeCl_3$, H_2SO_4)	Positive
7	Test for Saponines (Foam test)	Positive

3.5 Macroscopic studies of *Triticum aestivum*

Table 5: Macroscopic results of *Triticum aestivum*

Sr. No.	Parameter	Obeservation
1	Color	Dark Green
2	Odour	Faintly Characteristic
3	Apperance	Lanceolate leaves without cross-venation
4	Leaves Size	4-6 mm wide and 6-9 inches long
5	Taste	Slightly sweet
6	Texture	Soft

3.6 Microscopic studies of *Triticum aestivum:*

Qualitative microscopic evaluation was carried out by taking transverse and longitudinal sections of fresh leaves. Free-hand sections of the fresh leaves were boiled with chloral hydrate to remove all the coloring matter. The sections were transferred and mounted (glycerine) on a slide and a cover slip was placed over it.

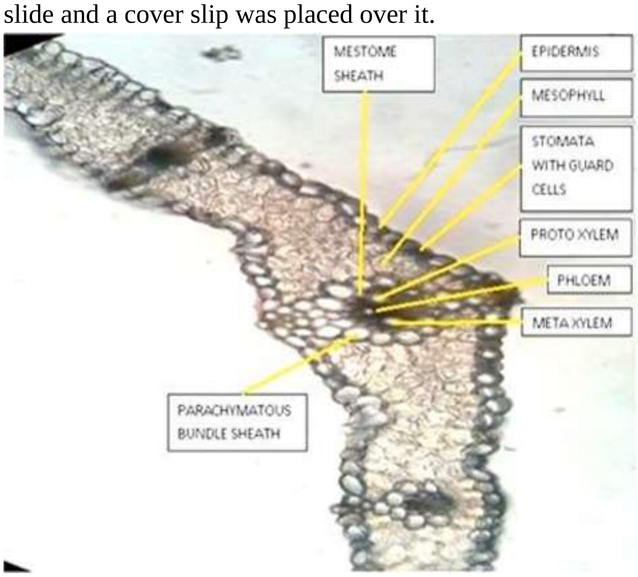


Figure 3: T.S. showing epidermis, vascular tissue and mesophyll

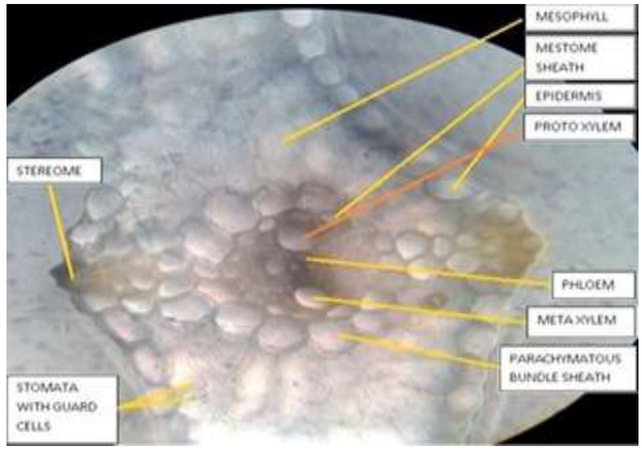


Figure 4: T.S. showing arrangements of vascular bundles.

Table 6: Physicochemical Parameters of *Triticum aestivum*

Sl. No.	Ash value	% W/W
1	Total ash	15.1
2	Acid-insoluble ash	5.3
3	Acid-soluble ash	4.9
4	Water insoluble ash	12.5
5	Water soluble ash	3.1
6	Water soluble extractive value	15.7
7	Methanol soluble extractive value	22.5
8	Benzene soluble extractive value	14.2
9	Choloroform soluble extractive value	5.3
10	Petroleum ether soluble extractive value	11.2

3.7 Preliminary phytochemical screening

The alcoholic and aqueous extracts of *Triticum aestivum* were subjected to preliminary phytochemical screening to determine the presence of phytoconstituents. Screening was carried out on both the *Triticum aestivum* extracts to determine the active principles or secondary plant constituents. Two milliliters of each extract were meas- ured into a test tube for each of the tests and concentrated by evaporating the extract in a trough. Tests were carried out for carbohydrates, reducing sugars, tannins, polyphe- nols, lipids, flavonoids, ketones, alkaloids, steroids and triterpenes.

Table 7: Phytochemical Parameters of *Triticum aestivum*

Sr. No.	Experiment	Aqueous Extract	Methanolic Extract
1	Alkaloids	Negative	Positive
2	Glycosides	Negative	Positive
3	Tannins & Phenolic comp.	Positive	Positive
4	Saponins	Positive	Positive
5	Flavanoids	Positive	Positive
6	Carbohydrates	Positive	Negative
7	Steroids	Negative	Positive
8	Amino acids	Negative	Positive

3.8 Evaluation of Cream

PH of the Cream: The pH of the cream was found to be in between 5.6-6.8 which is good for skin pH. All the formulations of cream were shown pH nearer to skin required.

Table 8: pH of formulated herbal cream

S. No.	Formulation	PH
1.	F1	5.8

Viscosity: The viscosity of cream was in between 500-1000 cps which indicates that the cream is easily spreadable by small amounts of shear. The formulated cream show good spreadable property.

Dye test: This dye confirms that all formulations were o/w type emulsion cream. But formulation show more stability in o/w type emulsion.

Spreadability Studies: When formulation was subjected to spreadability studies, it as found that the cream takes less time to spread as shown in Table 9.

Table 9: Spreadability Studies of Formulated Herbal Cream

Formulation	Time in Seconds	Spreadability (gm/sec)
	10	**15**

Type of smear: After application of cream, the type of smear formed on the skin were non greasy.

Homogeneity: Formulation produces a uniform distribution of extracts in cream. This was confirmed by visual appearance and by touch.

After feel: Emolliency, slipperiness and amount of residue left after the application of fixed amounts of cream was found good.

Removal: The formulated cream applied on the skin was easily removed by washing with tap water.

Appearance: When formulation was kept for a long time, it was found that there is no change in organoleptic properties of cream as shown in Table 10

Table 10 : Physical Characteristics of Herbal Cream

S. No.	Specifications	Limits
1.	State	Semi-solid
2.	Colour	Pale brown-white
3.	Odor	Characteristic
4.	Texture	Smooth

3.9 Acid value and Saponification value:

The results of acid value and Saponification value of all formulation were presented in table and showed satisfactorily values.

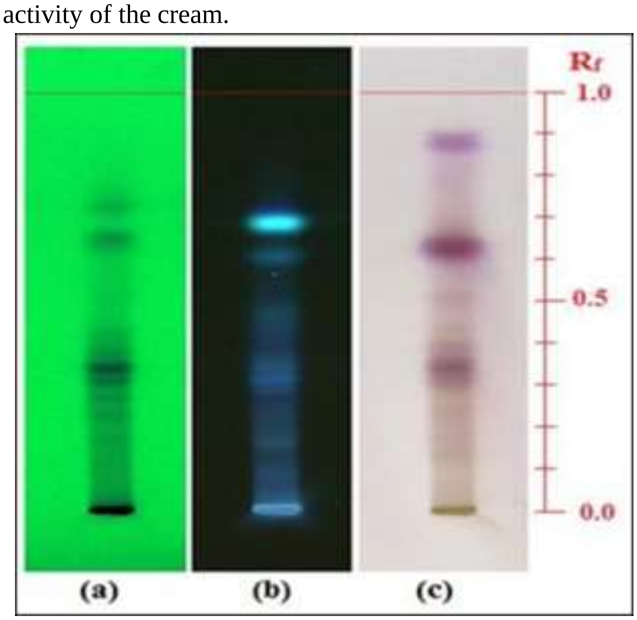
Table 11 : Results of Acid value and Saponification value of Herbal Cream

S. No	Parameter	Result of Formulated Cream
1.	Acid value	**6.1**
2.	Saponification value	**27.1**

3.10 TLC Analysis:

TLC Analysis of wheat grass and Vetiver was performed using TLC Plate as Silica gel G F254 coated aluminum plates. Mobile Phase (Solvent System) For Wheat Grass (rich in flavonoids, phenolics): Chloroform: Methanol: Water (7:3:0.5). For Vetiver (rich in sesquiterpenes, phenols): Toluene: Ethyl acetate (9:1). Extracts and cream samples spotted on TLC plate using capillary/micropipette. Plate developed in TLC chamber pre-saturated with mobile phase up to 8 cm. UV light (254 nm and 366 nm) for fluorescent spots were used and Iodine vapors or anisaldehyde–sulfuric acid reagent sprayed for visualization of terpenoids, flavonoids, and phenolics.

Wheat Grass extract showed 2–3 prominent bands under UV 366 nm, corresponding to flavonoids and phenolic compounds. Rf values were observed as 0.32, 0.55, 0.71 (depending on solvent system). Vetiver extract showed 2 major bands corresponding to sesquiterpenes and alkaloids. Rf values were observed as 0.41, 0.65. Methanolic extract of formulated cream showed spots matching both Wheat Grass and Vetiver extracts, confirming presence of phytoconstituents in formulation. Rf values were obeserved as 0.33, 0.55, 0.71 (from Wheat Grass) and 0.42, 0.66 (from Vetiver). TLC confirmed the incorporation of both Wheat Grass (flavonoids, phenolics) and Vetiver (sesquiterpenes, terpenoids) in the prepared skin cream. Rf values of cream extract corresponded with standard extracts, indicating stability and retention of active phytochemicals in the formulation. This supports the phytochemical basis of skin-protective and antioxidant activity of the cream.



4. Conclusion

From which are mentioned all the above results, it is concluded that on combining the *Triticum aestivum* and Vetiveria zizanioides different components in different ratio to get multipurpose effect such as whitening, anti-wrinkle, antiaging and sunscreen effect on skin and suggesting that composition of oil and base of cream of F1 formulation is more stable up to 12 months and safe, it may produce synergistic action without side effects as this cream comprising of much natural substances. Similarly, Preliminary phytochemical as well as macroscopic and microscopic characteristics of the plant were studied for quality control of raw drug. The plant of *Triticum aestivum and Vetiveria zizanioides* exhibits a set of diagnostic characteristics which will help to supplement information in regard to its identification parameters assumed significantly in the way of acceptability in present scenario of lack of regulatory laws to control the quality of drug.

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