Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Gotu Kola and Banana Flower as an Alternative Shampoo

Micah P. Toribio[1*], Kirsten Carrie O. Salarza[2], Raiza Mae G. Quemada[3], Cheimarlene Gayle S. Rasonabe[4]

[1,2,3,4]Association of Science and Mathematics Coaches of the Philippines, Association of Teachers and Educational Leaders Philippine Institute of 21st Century Educators Inc. Philippine.*

Email: [2]kirstensalarza30@gmail.com, [3]quemzmae21@gmail.com
[4]cheimarlenegaylerasonabe@gmail.com
Corresponding Email: [1]toribiomicah019@gmail.com*

Received: 10 November 2023 **Accepted:** 27 January 2024 **Published:** 13 March 2024

Abstract: ***Investigates the efficacy of incorporating extracts from Gotu Kola (Centella asiatica) and Banana Flower (Musa spp.) into natural shampoo formulations. Both botanicals are renowned for their traditional uses and potential benefits for hair care. The study evaluates the cleansing, conditioning, and revitalizing properties of these extracts, emphasizing their eco-friendly and sustainable attributes. Preliminary findings suggest promising results in terms of cleansing efficiency and hair health. The exploration of Gotu Kola and Banana Flower as alternative shampoo ingredients aligns with the growing demand for sustainable and plant-based personal care products, offering potential alternatives to conventional chemical-laden shampoos.***

Keywords: Gotu Kola, Banana Flower, Alternative Shampoo, Natural Formulations, Eco-Friendly, Sustainable.

1. INTRODUCTION

Background of the Study

Gotu Kola (Centella Asiatica) is a timeless herb, also known as bitter gourd or bitter melon. According to (Sabaragamuwa, R., Perera, C. O., & Fedrizzi, B., 2022) Gotu Kola it consists primarily triterpenes and caffeoylquinic acids and is a green leaf vegetable rich in phytochemicals. In a variety of global cuisines, fresh leaves from these plants are utilized in beverage and salads. In traditional communities, this well-known functional meal for is neuroprotective and cognition-improving qualities. In addition, Indian pennywort (Centella Asiatica) it is grown all throughout the world for essential oils, food flavoring, and traditional remedies (Yousaf, S., et al.,2020).

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Gotu Kola has an Asiatic Acid, a naturally occurring pentacyclic triterpene, has wide range of Pharmacological properties, including antioxidant, anti-inflammatory, and apoptosis-controlling ones that explain its therapeutic effects on a number of disorders. Additionally, it demonstrated strong antihypertensive, nootropic, neuroprotective, cardioprotective, antibacterial, and anticancer effects in preclinical tests (Nagoor Meeran et al., 2018). Furthermore, Gotu Kola (Cetella Asiatica) has a number of substances that have anti-hypertension properties (Astutik, F. E. F., et al., 2021). Moreover, because Gotu Kola contain Triterpene substances such as asiatic acid, madecassic acid, asiaticoside, and made cassoside, its leaves are beneficial in the treatment of wounds. (Ago, M. B. N., & Adifa, D. P., 2020). The plant Cetella asiatica is a belong to the member of the Apiceae family. According to (Amalia, N., et al., 2023)

Centella Asiatica is frequently utilized in the pharmaceutical and cosmetics industries. Numerous chemical substances are found in Centella Asiatica, including terpenes such asiaticoside, madecassoside, asiatic acid, and madecassic acid are used as biomarkers for the gotu kola plant. Centella Asiatica, also known as Brahmi or Gotu Kola, has been used for thousands of years to treat a variety of internal and external illnesses, many of which are connected to the crown chakra. To increase circulation and encourage thicker hair growth, combine Gotu Kola extract with olive oil and massage into the scalp (Sawicka, B., & Noaema, A., 2015).

Banana flowers have the phytochemical and functional properties of the outer and inner bracts of the culinary banana flower, which is a by- product of banana production. Both the outer and inner bracts, both in free and bound form, are rich in fiber as well as other chemical compositions such as proximal substances, miner minerals, and both antioxidant-rich phenols (Begum, Y. A., & Deka, S. C.,2019).

India was one of the top producing nations for bananas, with an average annual production of 29 million tons from 2010 to 2017, followed by China with an average annual production of 11 million tons. Due to their high nutritional value, banana flowers- also known as male banana buds or banana flowers- are an edible consequence of the banana producing process. It includes several bioactive substances that are known to have antioxidant, and anticancer properties, including flavonoids, alkaloids, phenols, and tannins. Crude fiber in a variety of biologically active substances including vitamin C, tannins, myo-inositol phosphate, and alpha-tocopherol, are abundant in banana blossoms. This flower is used to make a variety of dishes since it is rich source of phytochemicals with antioxidant characteristics (Soni, D., & Saxena, G., 2021).

Banana flowers contain many different bioactive ingredients, including several antioxidants that have anti-inflammatory effects. Banana flower extracts significantly increased hair cell growth and decrease the expression of SRD5A1, SRD5A2 and AR genes related to hair follicle growth inhibition and significantly increase the expression of KROX20 related gene to hair follicle growth inhibition, hair growth in HFDPC. Consuming banana flower extract for twelve weeks increased hair root diameter, reduce hair loss and scalp redness compared to the placebo group. Therefore, banana flower extract can stimulate hair growth and inhibit the activation of hair loss genes (Liang, C. H., et al., 2023) Gotu Kola and Banana Flower as an alternative shampoo stem from the increasing demands for natural eco-friendly personal care products. Traditional shampoo formulations often contain synthetic chemicals that can have

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

detrimental effects on both human health in the environment. To address this concern, researchers are exploring natural alternatives that can offer effective cleansing and nourishing properties without the associated drawbacks. By conducting this study, researchers aim to evaluate the efficacy of a shampoo formulation containing Gotu Kola and Banana Flower extracts. The investigation will focus on assessing the shampoo's cleansing efficacy, ability to enhance hair strength and shine, promote scalp health, and minimize potential adverse effects. The results of this research could provide valuable insights into the use of natural ingredients as alternatives to conventional shampoo, with potential implications for both the personal care industry and consumer well-being.

Objectives of the Study

The researchers aim to create an alternative Shampoo of Gotu kola and Banana Flower Specifically, the study aims to:

1. Determine and assess the potential benefits of the alternative shampoo;
2. Cleansing properties and impact on scalp conditions;
3. Contribute of an eco-friendly and sustainable hair care product.

Significance of the Study

This study was conducted to investigate the potential benefits of Gotu Kola and Banana Flowers on people's hair.

To the Parents, alternative shampoos can help care for their own hair and that of their children.

To the Students, the results will help students disseminate information about this alternative shampoo. So that everyone used it and would see the benefits of shampoo.

To the Future Researchers, the results of alternative shampoos could serve as an inspiration to expand research and develop new products

To the Community, the study helps the community for it can now be done so that everyone can have benefits, then the community will also benefit because of that alternative shampoo will be recognize as in its results

The Costomologies, the results of alternative shampoos can serve as new products that they can recommend to their customers to improve their hair quality.

Scope and Limitation

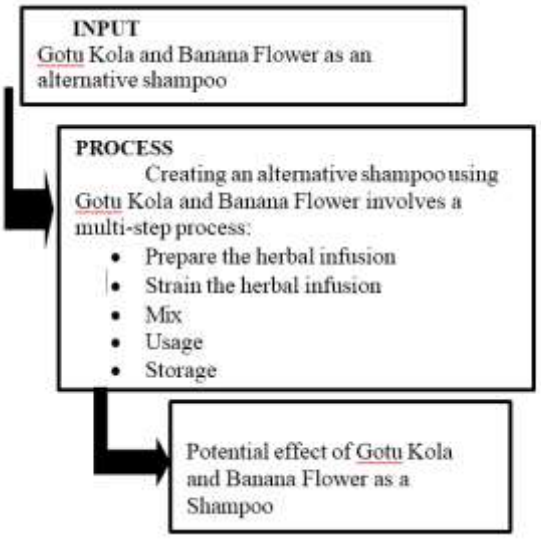
This study focuses on exploring the potential of using Gotu Kola and Banana Flower as alternative ingredients in shampoo formulations. This study does not include curing diseases. The report investigates the effectiveness of Gotu Kola and Banana Flower extracts in cleansing, moisturizing, and nourishing the hair, as well as their potential benefits for scalp health. The research delimits itself to the evaluation of these specific natural ingredients and does not extend to the study of other herbal extracts or chemical substances commonly used in shampoos. Furthermore, the report does not assess the commercial viability or market demand for such alternative products Centella asiatica, often known as gotu kola, is a medical plant that has been used for thousands of years in both traditional and modern medicine. Pentacyclic triterpenes, primarily asiaticoside, madecassoside, Asiatic and madecassoside

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

acids, are among the active substances.

Conceptual Framework
Research Paradigm



Literature Review and Examined the Gotu Kola (Centella Asiatica)
The literature reveals that Gotu Kola is consists primarily triterpenes and caffeoylquinic acids and it rich in phytochemical (Sabaragamuwa, R., Perera, C. O., & Fedrizzi, B., 2020). Also, this Indian pennywort (Centella Asiatica) are essential for food flavoring, and traditional remedies (Yousaf, S., et al., 2020). Furthermore, Guto Kola has an Asiatic Acid it is also has a wide range of pharmacological properties, including antioxidant, anti-inflammatory and apoptosis. Additionally, it demonstrated strong antihypertensive, nootropic, neuroprotective, cardio protective, antibacterial, and anticancer effects in preclinical tests (Nagoor Meeran et al., 2018). Banana flowers have the phytochemical and functional properties that can be found in inner and outer bracts of the culinary banana flower, and this is rich in fiber as well as other chemical compositions such as proximal substances, minerals, and both antioxidant-rich phenols (Begum, Y. A., & Deka, S. C., 2019).
The notable work examined the compound that can be found in Banana Flower. This study examines the effectiveness of Banana Flower extracts in strengthening hair follicles and preventing hair loss. In laboratory experiment, it was discovered that extracts derived from Banana Flower can reduce the presence of ROS and DHT, while promoting the expression of genes associated with hair growth. Clinical trial participants who consume these extracts experienced a decrease in scalp redness and hair loss. Supplements containing Banana Flower extract are rich in anti- inflammatory flavonoids and phenolic compounds, which support the development of healthy hair. This particular study analyzed the antioxidant properties of Banana Blossoms from various cultivars such as Kathali, Bichi, Shinapuri, Kacha, Champa, and Kalabou. (Liang et al., 2023).
Centella asiatica, or Gotu Kola, underwent a comprehensive phytochemical investigation

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

that showed a convergence of related bioactive chemicals in these plants. Steroids, flavonoids, saponins, and tannins were among the components that we shared by the extracts Gohil et al., 2010.

Gotu kola (Centella asiatica) contains flavonoids, which are a group of plant compounds known for their antioxidant and anti-inflammatory properties. Flavonoids are a type of phytonutrient found in various fruits, vegetables, and herbs, including Gotu Kola.

Gotu Kola is a hydrating ingredient that suits sensitive skin, which is more prone to redness and irritation. It is an unbeatable moisture regulator that travels deep into the hair to make them look hydrated, soothing and nourished.

It is one of those blessed bounties of nature that goes well with every hair type. It is composed of a compound, triterpene saponin, which makes reduces hair & scalp related concerns. Phytonutrients are also present in this herb which are also known as flavonoids. They damage free radicals, boost collagen levels, nourish the tissues and improve the texture of hair (McDermott, 2018).

Centella asiatica, an important medical herb that is widely used in traditional medicine. It discusses the primary constituents of Centella asiatica, including triterpenoid saponins. Gohil, K. J., Patel, J. A., & Gajjar, A. K. (2010).

Gotu Kola contains saponins that stimulate hair growth by increasing blood circulation to the scalp, strengthening hair follicles, preventing hair loss, and protecting against accelerated aging processes. These saponins deliver essential nutrients and oxygen, promoting healthy hair follicles and preventing breakage. They also strengthen the hair shaft, preventing it from becoming weal and brittle.

2. RELATED WORKS

Gotu Kola

The benefits of Gotu Kola extract in cosmetics extend to various aspects of skin care. Renowned for its astringent properties, tannins, and soothing essential oils, Gotu Kola serves as an excellent ingredient for toning and stimulating the skin, ensuring a safety-conscious approach in skincare. Pudke and Borikar, 2022 asserted that with triterpenoid, asiaticoside, madekakoside, and flavonoids among its constituents, Gotu Kola has been utilized in skincare products due to its antioxidant and anti-inflammatory activities, effectively combating premature aging.

In the realm of cosmetics, Saansoomchai et al., 2018 said that Gotu Kola emerges as a valuable compound for skincare preparations, owing to its antioxidant, anti-inflammatory, anticellulite, and antiaging properties. Its positive impact on enhancing the skin's condition is particularly noteworthy. The deep healing capabilities of Gotu Kola herbs contribute to its effectiveness in cosmeceuticals, especially in the areas of anticellulite, anti-wrinkle, and wound healing, primarily attributed to triterpenes that boost collagen synthesis.

The bioactivity of Gotu Kola is underscored through examinations of its triterpene composition, revealing properties such as collagen enhancement, antioxidant capabilities, anticellulite effects, and UV protection. Beyond its antiaging attributes, Gotu Kola extract proves valuable in improving skin hydration, enriched with fatty acids that make it suitable for moisturizing cosmetic formulations, particularly in the treatment of dry and sensitive skin.

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Gotu Kola's role in skincare extends to promoting firmness and elasticity through biological compounds like Asiatic acid, madecassic acid, asiaticoside, and madecassoside. Its ability to stimulate collagen synthesis positions it as a sought-after ingredient in skincare products aimed at repairing and enhancing skin appearance. Furthermore, the protective nature of Gotu Kola against skin aging is evident as asiaticoside, isolated from the herb, demonstrates the synthesis of type I collagen in human dermal fibroblast cells, mitigating the visible signs of aging.
As a pivotal herb with anti-aging effects, Gotu Kola plays a significant role in enhancing collagen synthesis, further contributing to its anti-aging activity (Edris & Natzir, 2021). The multifaceted benefits of Gotu Kola in cosmetics encompass not only the enhancement of skin aesthetics but also its therapeutic properties, making it a noteworthy ingredient in skincare formulations.

Banana in Cosmetology
A study of Bhadane et al., 2023 which aimed to address concerns associated with the potential side effects of chemical-based shampoos by developing an herbal anti-dandruff alternative. Incorporating modern formulation technology, the research utilized natural ingredients, including Ritha fruit, Liquorice stolon's, Bengal gram seeds, Brahmi leaves, Green-gram seeds, Banana roots, pomegranate seeds, Hibiscus leaves, Marigold flowers, and lemon fruit.
The resulting herbal shampoo underwent rigorous testing and stability studies, with Formulation 4 emerging as the most effective method. In a comprehensive review of research data, this herbal anti-dandruff shampoo proved to be safe, effective, and economically viable compared to the synthetic Dove anti-dandruff shampoo, suggesting the potential for a commercially available herbal alternative that could offer consumers a safer and more natural solution.
Another related work according to Vanishree et al., 2023 is the research program titled "Formulation of Banana Peel Extract Shampoo Resulting from Utilization of Natural Resources in Sugihmanik Village, Responsibilityharjo District, Grobogan Regency" culminated in a positive impact on the residents of Sugihmanik Village. The program effectively introduced the community to the potential of utilizing kepok banana peels as a key ingredient in shampoo production, creating a unique regional specialty product. This innovation holds promise for further development within the community's economic programs, showcasing the versatility of natural resources and their potential to contribute to local economic initiatives. The positive outcomes of this research program are anticipated to inspire residents in Sugihmanik Village to embrace innovation and enhance the overall welfare of the community.

3. METHODOLOGY

The study is conducted using qualitative and quantitative. The researcher made an effort to analyze the potential effect of Gotu Kola and Banana Flower in the hair. In addition the researcher had an extract tested by the Department of Science and Technology (DOST) by phytochemical analysis. According to Chukwuebuka Egbuna et.al. 2018, phytochemical analysis uses both qualitative and quantitative analysis to determine the presence and absence of phytochemicals plant samples. (Chukwuebuka Egbena et.al. 2018).

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Materials

Name	Uses	Picture
Terrapin Glass	For treated human hair wig storage	
Human Hair Wig	In the absence of human involvement to the test, wig is used to determine the effectivity of the experimentation	
Gotu Kola Extract	It is used as one of the main ingredients in shampoo.	
Banana Flower	It is used as one of the main ingredients in shampoo.	

Product
Storing by products made from Gotu Kola and Banana Flower extract.



Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

4. RESULTS AND DISCUSSION

This chapter shows tables of phytochemical analysis and its qualitative and quantitative interpretations.

Phytochemical Analysis Results

Table: 1. Phytochemical Results of Gotu Kola

Sample	Parameter	Result
Gotu kola	**Alkaloids** Confirmatory Test (+) primary alkaloid (++) secondary alkaloid (+++) tertiary alkaloid Test fof Quarternary Bases & Amine Oxide	+
	Steroids Keller Killiani Test: For 2- deoxysugars Lieberman-Burchard Test: For Unsaturated	
	Flavonoids Bate-Smith & Metcalf Method: For Leucoanthocyanins	+
	Saponins Froth Test	+
	Tannins Ferric Chloride Test *Brownish-green color indicates the presence of condensed tannins *Blue-black color indicates the presence of hydrolysable tannins Metcalf Method: For Leucoanthocyanins	+ **(Brownish- green)**
	Saponins Froth Test	+
	Tannins Ferric Chloride Test *Brownish-green color indicates the presence of condensed tannins *Blue-black color indicates the presence of hydrolysable tannins	+ **(Brownish- green)**

The phytochemistry of Centella asiatica (Gotu Kola) and its neurological effects. It talks about the several phytochemicals found in Gotu kola, such as tannins, and how they could be able to

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

protect against neurological disorders. Gray, N. E., Alcazar Magana, A.,Lak, P., Wright, K. M., Quinn, J., Stevens, J. F., …& Soumyanath, A. (2018) Tannins have astringent properties that strengthen hair follicles, reduce breakage, and promote overall hair health. They also have antioxidant effects, protecting hair and scalp from oxidative stress. They also soothe scalp, alleviating irritation and inflammation. Additionally, tannins stimulate hair growth by improving blood circulation to the scalp, delivering essentials nutrients and oxygen.

Table: 2.Phytochemical Results of *Banana flower*

Sample	Parameter	Results
Banana Flower	**Alkaloids** Confirmatory Test (+) primary alkaloid (++) secondary alkaloid (+++) tertiary alkaloid	+
	Test for Quarternary Bases & Amine Oxide	-
	Steroids Keller-Killiani Test: for 2-deoxysugars Lieberman-Burchard Test: For Unsaturated	+ -
	Flavonoids Bate-Smith & Metcalf Method: For Leucoanthocyanins	+
	Saponins Froth Test	+
	Tannins Ferric Chloride Test *Brownish-grren color indicates the presence of condensed tannins *Blue-black color indicates the presence of hydrolysable tannins	+ **(Brownish- green)**

Phytochemical analysis of banana flowers (Musa Acuminata Colla) has revealed a combination of similar biologically active compounds in this plant. Its extract contains common components such as alkaloids, steroids, flavonoids, saponins and tannins. The flower extract of Musa acuminatais extracted by maceration with methanol and the phenolic and aliphatic compounds present in the flower extract are identified using GC-MS analysis. Phytochemical screening of the banana extract showed in the presence of alkaloids. Potent antibacterial activity is observed from the flower extract against the tested gram positive and negative bacteria. (Das, A., et al 2020).

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Alkaloids are important secondary metabolites in plants and a phytochemical study of banana flowers reveals the presence of primary, secondary and tertiary alkaloids. In addition, it is used in the production of ampoules for aesthetic medicine doctors and cosmetologists (Stepnoiwska et al., 2021)

Natural cosmetic products containing plant components such as vitamins, polyphenols and alkaloids have become increasingly popular..Alkaloids are important secondary metabolites in plants. They are known to possess therapeutic properties. Alakaloids can be used in the production of ampoules for cosmetologist and aesthetic medicine doctors.Cieplinska, P., Fac, W. & Gorska,J.(2021).

A mixture of related biologically active substances in the banana plant (Musa Acuminata Colla) has been identified by phytochemical investigation of the blossoms. Common ingredients found in its extract include tannins, alkaloids, steroids, flavonoids, and saponins.

Steroids in relation to hair care: a straightforward and sensitive gas chromatography/tandem mass spectrometry (GC/MS/MS) approach is presented for the detection of anabolic steroids, which are often found in keratin matrix at extremely low quantities. Some hair products may contain corticosteroid or anabolic steroids. Methylesto resterone, nandrolone, boldenone, fluoxy methoron, cocaine, and its metabolite benzoy lecgonine were measured in hair samples from seven athletes who voluntarirly disclosed use anabolic steroids and, in one instance, cocaine. (Gambelunghe,C., 2007).

These are the most widely used plants to confirm their anti-hairloss power, identify potential mechanisms of action and recommend their best adoption. Flanoids are thought to contain beneficial features in repairing or recovering from hair follicle disruption. They are also thought to reduce hair or stimulate new hair growth.

Saponins are diverse group of compounds widely distributed in the plant kingdom, which are characterized by their structure containing a triterpene or steroid aglycone and one or more sugar chains. Mounting evidence on the biological activity has led to the emergence of saponins as commercially significant compounds with expanding applications in cosmetics, and pharmaceutical sectors.Guclu-Ustundag,O., & Mazza, G. (2007

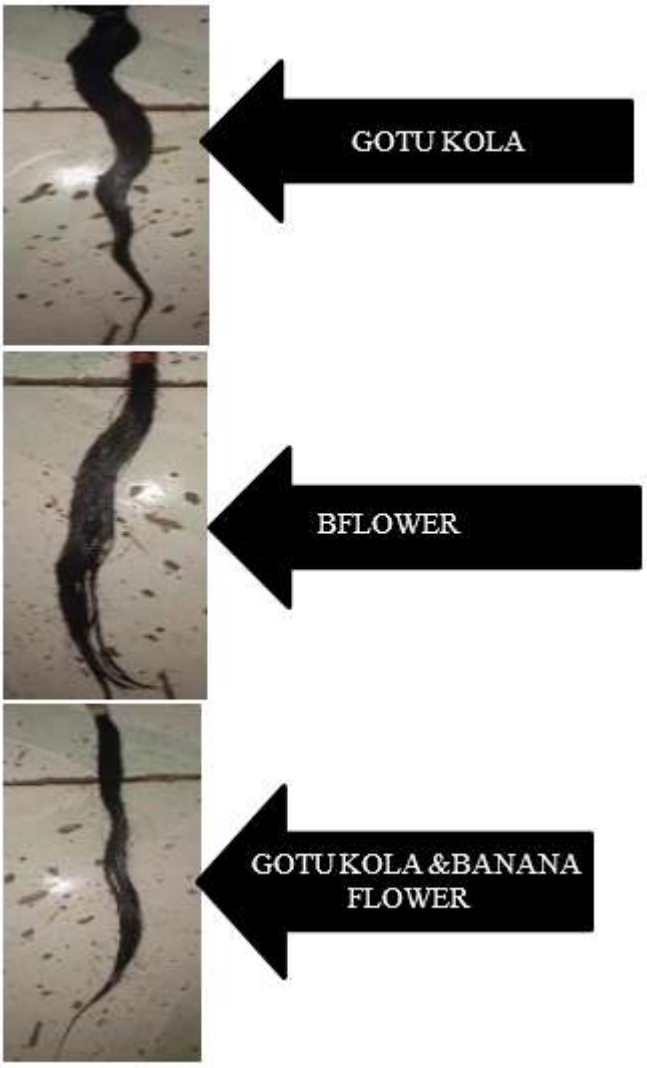
When saponins and water are combined, the water's surface tension is lowered, promoting the creation of tiny, stable bubbles, because of the surface activity of them. Properties, saponins are highly stable foaming agents. Nowadays, saponins are utilized to boost the foamy properties to make shampoos, liquid soaps and cosmetics. Both liquid and powdered saponins are available. Jan. A., Green, G., Paget, C., Hembree, B., Larry, F., Kushman, K. & Laws,F. M. Saponins' advantages. Many skin and hair issues are treated with plant saponins.

They are gentle and natural; they act as natural conditioners and cleaners and do not strip and hair of natural oils. Most plant saponins also strengthen hair follicles, promote hair growth, and color hair. Kora, A. J. (2023).

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Banana flower is a substance similar to tannins. Tannins moisturize the hair, protect the hair fibers and give hair elasticity. In addition, several clinical studies have shown that these compounds have antioxidant and anti- inflammatory properties and are therefore beneficial for overall health.



Summary, Conclusion and Recommendation
This chapter presents the summary of findings, conclusions, and recommendations drawn by the researcher from the results obtained in this study.

Summary of Findings
Gotu kula is also known as Centella Asiatica or pennywort and bitter gourd or bittermelon. Gotu kola is a natural remedy known for its potential benefits inhair growth, scalp, health, dandruff treatment, hair conditioning, hair loss prevention, and hair color

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

maintenance. It stimulates hair growth by promoting collagen production, strengthens hair follicles, and prevents breakage. Its antibacterial and antifungal properties help maintain a healthy scalp, reduce inflammation, and prevent infections. Gotu kola also acts as a natural hair conditioner, reducing frizz and improving hair texture. It also helps prevent hair loss by strengthening hair follicles and nourishing roots. Musa acuminata Colla or Banana flowers (aka banana blossoms) are exactly what their name suggests: the blossoms from a banana tree. They're a completely edible and can be found fresh at roadside stands and farmers markets, wherever bananas are grown, but are especially prevalent in Asia. They're will be in to grow hair by using the banana flower extract. The hair on our heads doesn't just look nice and give confidence to us. It keeps us warm by preserving heat also and it protects the body against ultraviolet damage.
We conducted this study to highlight the possible benefits of using Gotu Kola and Banana blossom as a shampoo substitute. The effect of a three-week extract on hair is that in Gotu Kola extract, after 1 week of soaking, the hair is straightened and shiny, while in Banana Flower extract, it can darken and thicken your hair. The last extract that was mixed with Gotu Kola and Banana Flower can darken your hair. The result of the research subjects we experimented with was that Gotu Kola is effective as an alternative shampoo.

5. CONCLUSIONS

In conclusion the phytochemical analysis of banana flower and Gotu Kola has unveiled alkaloids steroids flavonoids saponins and tannins. This substances discovered during phytochemical analysis of Banana flower and Gotu Kola flower and leaf extract indacate that Banana Flower and Gotu Kola can be utilized as an alternative shampoo.

Based on the result came out during experimentation, researcher conclude that Banana Flower and Gotu Kola have potential effect on our hair. The effect of a three-week extract on hair is that in Gotu Kola extract, after 1 week of soaking, the hair is straightened and shiny, while in Banana Flower extract, it can darken and thicken your hair. The last extract that was mixed with Gotu Kola and Banana Flower can darken your hair. The result of the research subjects we experimented with was that Gotu Kola is effective as an alternative shampoo.

Recommendations
Sample Selection or Select a participant: having a participation can be good decision in experimenting the extract in the hair since you may gather more reliable and accurate result.
Use another Method of making shampoo: Imagine that you have discovered a quicker method for creating shampoo. It is advisable to use a food dehydrator to dry the Gotu Kola and banana flower leaves before making shampoo. That will save you time.
Conduct a focus group interview: Conducting an interview by yourself could cause some discomfort and increase the amount of time needed to get the data. Time can be saved during a focus group interview by compiling member responses.
Clinical Trials: if the researcher progresses to advanced stages, consider conducting clinical trials to validate the safety and efficacy of Gotu Kola and Banana Flower shampoo on larger scale.

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

6. REFERENCES

1. Ago, M. B. N., & Adifa, D. P. (2020). Benefits of Gotu Kola Leaf in Responding to Prevent the Form of Keloid in the Wound. Indonesian Journal of Global Health Research, 2(1), 23-28. https://doi.org/10.37287/ijghr.v2i1.61
2. Amalia, N., Okta, F. N., Zahra, A. A., & Nuari,
3. D. A. (2023). Update Review: Extraction, Purification, and Pharmacological Activities of Gotu Kola Terpenoids.
4. Astutik, F. E. F., Zuhroh, D. F., & Ramadhan, M. R. L. (2021). The effect of gotu kola (Centella asiatica L.) tea on blood pressure of hypertension. Enfermeria Clinica, 31, S195-S198. https://doi.org/10.1016/j.enfcli.2020.12.0 21
5. Begum, Y. A., & Deka, S. C. (2019). Chemical profiling and functional properties of dietary fibre rich inner and outer bracts of culinary banana flower. Journal of food science and technology, 56, 5298- 5308. https://link.springer.com/article/10.1007 /s13197-019-04000-4
6. Chiang, S. H., Yang, K. M., Lai, Y. C., & Chen, C. W. (2021). Evaluation of the in vitro biological activities of Banana flower and bract extracts and their bioactive compounds. International Journal of Food Properties, 24 (1), 1-16. https://scholar.google.com/scholar?clust er=11070115143402794
7. Egbuna, C., Ifemeje, J. C., Maduako, M. C., Tijjani, H., Udedi, S. C., Nwaka, A. C., & Ifemeje, M. O. (2018). Phytochemical test methods: qualitative, quantitative and proximate analysis. Phytochemistry, 1, 381-425.https://www.taylorfrancis.com/chapters/ edit/10.1201/9780429426223- 15/phytochemical-test-methods qualitative-quantitative-proximate- analysis-chukwue buka-egbuna- jonathan- ifemeje- maryann-chinenye-maduako- habibu- tijjani- stanley-chidi- udedi-andrew-nwaka-maryjane- oluoma-ifemeje
8. Firgiyanto, R., Elfina, V., Kusparwanti, T. R., Dinata, G. F., Rohman, F., & Pertami, R. R. D. (2023). The Growth and Yield Response of Gotu Kola Plant on Some Organic Fertilizers. Jurnal Ilmu Pertanian Indonesia, (00). https://scholar.google.com/scholar?cluster=342091056581964917 7&hl=tl&as_sdt=0,5#d =gs_qabs&t=1697012848209&u=%23p%3DmYwP7AiEeS8J
9. Gubitosa, J., Rizzi, V., Fini, P., & Cosma, P. (2019). Hair care cosmetics: From traditional shampoo to solid clay and herbal shampoo, a review. Cosmetics, 6(1), 13. https://doi.org/10.3390/cosmetics601001 3
10. Indrawati, T. I., Simanjuntak, L., & Pratami, D. K. (2020). Hair Tonic Shampoo Formulation with Ambon Banana (Musa Acuminata COLLA) Corm Extract. International Journal of Applied Pharmaceutic, 12(5), 279-285. https://innovareacademics.in/journals/in dex.php/ij.
11. Liang, C. H., Lin, Y. H., Lin, Y. K., & Chiang, C. F. (2023). Hair growth-promotion effects and antioxidant activity of the banana flower extract HappyAngel®: double-blind, placebo-controlled trial. Food Science and Human Wellness, 12(5), 1917-1923. https://www.sciencedirect.com/science/articl e/pii/S2213453023000435
12. Nagoor Meeran, M. F., Goyal, S. N., Suchal, K., Sharma, C., Patil, C. R., & Ojha, S. K. (2018). Pharmacological properties, molecular mechanisms, and pharmaceutical development of asiatic acid: a pentacyclic triterpenoid of therapeutic promise.

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol: 04, No. 02, Feb- Mar 2024
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.42.11.24

Frontiers in pharmacology, 9, 892. https://doi.org/10.3389/fphar.2018.00892Ngamkham, W.(2018).Advertising design for Thammachad Botanical Shampoo. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Benefits+of+Gotu+Kola+for+Hair+Loss&oq=#d=gs_qabs&t=1694060946175&u=%23p%3DCw JQUmptDHkJ

13. Pudke, S., & Borikar, M. (2022). THE ROLE OF GOTU KOLA IN COSMECEUTICAL: A REVIEW.
14. Sabaragamuwa, R., Perera, C. O., & Fedrizzi, B. (2022). Ultrasound assisted extraction and quantification of targeted bioactive compounds of Centella asiatica (Gotu Kola) by UHPLC-MS/MS MRM tandem mass spectroscopy. Food Chemistry, 371, 131187.https://doi.org/10.1016/j.foodchem.2021. 131187
15. Nutrient Sawicka, B., & Noaema, A. (2015, September). Cosmetics active ingredients used in the Middle East. In Conference: II National Scientific Conference "Modern technologies and treatments in cosmetology". Lublin,Poland https://scholar.google.com/scholar?hl
16. Soni, D., & Saxena, G. (2021). Complete profile of Banana flower: A review. Journal of Plant Science Research, 37(2). https://web.s.ebscohost.com/abstract?
17. Yousaf, S., Hanif, M. A., Rehman, R., Azeem, M. W., & Racoti, A. (2020). Indian Pennywort. In Medicinal Plants of South Asia (pp. 423-437). Elsevier. https://doi.org/10.1016/B978-0-08-102659-5.00032-

Copyright The Author(s) 2024.This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)