iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** IV **Month of publication:** April 2025

DOI: https://doi.org/10.22214/ijraset.2025.68763

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue IV Apr 2025- Available at www.ijraset.com

Formulation and Evaluation of Herbal Lipstick from Beetroot

Ms. Nikita kolape[1], Ms. Nidhi Jawalkar[2], Mr. Nitin Gawai[3], Ms. Priyanka Kakade[4], Mr. Devang Shelake[5]
B. Pharmacy Department, Mahadev Kanchan College of Pharmaceutical Education and Research, Uruli Kanchan, Pune, Maharashtra, India

Abstract: ***The goal of this study is to evaluation the health risks associated with the heavy metals found in traditional lipstick formulations. The objective is to offer a safer alternative to regular lipsticks while maintaining stability or efficacy. The medicated lipstick was made with the powerful dispersion method, where used oil as the dispersing medium. Beetroot powder extract is added to the lipstick to improve its color, and the medicament acyclovir was successfully added to the blend. According to the particle size analysis, the lipstick particles exhibited an average size of 407 nm and ranged in size from 300 to 600 nm, supporting excellent dispersion and homogeneity. 35-day test results confirmed that the goods maintained their stability, indicating that they could be used for an extended length of life. Additionally, by changing the composition of the oil and beet extract, lipsticks of various colors were created with the same stability. To sum up, this study opens the way for further study and development in this field by exhibiting the potential of pharmaceutical additions and natural parts to enhance safety and efficacy in cosmetic formulations.***

Keywords: Acyclovir, Beetroot extract, Characterization, Lipstick formulation, Medicated lipstick [1]

I. INTRODUCTION

Cosmetics, including herbal preparations, are widely used to enhance the overall appearance of the human body and have become very popular in the global market .The demand for herbal products, including organic capsules, tonics, shampoos, contraceptives, and lipsticks, has been growing consistently . Lipstick, in particular, is a popular beauty product available in a selection of shades and textures. Though utilizing lipstick on dry, cracked lips with sores and lesions has been a practice due to prehistoric times,
apeuIn addition, the use of artificial shades in lipstick compositions may be harmful to human health, particularly if contamination with heavy metals are present . Long-term health hazards involving certain heavy metals, like lead, may cause brain damage and cancers of the gut. The including of natural chemical substances in cosmetic formulations has drawn passion as a way to decrease these adverse outcomes . Beta vulgaris, also referred to as beetroot, is a natural source of reddye that the can be used in place of artificial dyes. The main substance that gives beetroot its red hue, bethanin, has the potential to be used in lipsticks . Further, lipsticks with medicinal benefits can be utilised as a thertic medication for lip infections . [1]

II. DEFINE LIPSTICK

Basically, lipstick is a stick-shaped mixture of coloring agents suspended in a formula comprised of a suitable combination of oils, fats, and waxes, along with relevant odors and flavors, that imparts the lips gloss and color when applied. Lipsticks focus awareness to the lips and fill up mistakes, allowing them the look of being younger.(1)

III. THE ORIGINS OF LIPSTICK

The earliest recorded instances of colored cosmetic existed in Mesopotamia 5000 years ago, and rare and semi-precious minerals were smashed and used on the eyelids and lips. Lipstick first to be manufactured in cylindrical metal tubes in 1915. a little only a handful of the poorest who could not afford the costly cost of cosmetics, nearly all of ancient Egypt's community applied eyeliner for its better feel and provide protection from the sun and scorching desert winds. Lipstick, on the other hand, became a daily necessity for these people. Early lipsticks, considered quite dangerous, originated utilizing seaweed extract, iodine, and bromine mannite. They finally found a means to extract the carmine colors from beetles and ants. Cleopatra frequently appeared having red lips (51-30 BC). For the first 1500 years after Cleopatra's rules, beauty were nearly nonexistent in Europe, at least until the Renaissance. The idea of "lipstick" was not used commonly until the late 19th and early 20th centuries, and the idea of it word wasn't coined until 1880. The 1920s featured a spike in popularity use lipstick and other skin care products, and this tradition continues to exist to this day.

©IJRASET: All Rights are Reserved

Lipstick has become a vital item for a lot of clients. There are many varying color tones and textures to select from. As shows up everywhere, lipstick is being made into hundreds of different shadings to meet customer demand. great things about using moisturizing lipsticks are wet and very shiny lips. [2]

IV. TYPES OF LIPSTICK

A. *Moisturizing Lipstick*

Because hydrating lipsticks preserve lips smooth and flexible, they are suggested for people having dry lips. These lipsticks hydrate lips because of components like(2)

Glycerine, aloe vera gel and vitamin E

B. *Satin and sheer lipstick*

These lipsticks maintain lips satiated, nurtured, and shining. While they involve plenty of oil, satin and sheer lipsticks may look darker in their bottles than they will on the lips. A further advantage of oil-based fluids lipsticks is that need regular reaction(2)

C. *Lipstick and Mate*

Mate lipsticks are a perfect option for women seeking for a beautiful strong color. These lipsticks offer an appearance of lips which are flat versus smooth. Matte lipstick helps to make your lips more younger and buried. Further, coupling vitamin E-based and aloe products with mate lipsticks has been suggested.(2)

D. *Cream Lipstick*

Cream lipsticks are good for women in short lips. Cream-based lipstick leaves a smooth look for lips but wasn't flashy. For the intended look, you have to use lip gloss subsequently. Cream lipsticks utilize a higher wax composition to protect lips, but also lead to dry lips as an an adverse consequence.(2)

E. *Frosted and Pearl Lipstick*

Frosted lipstick provides lips a sparkling, shining effect. Frosted and pearl lips reflect light which gives your lips a sheen that shines. Negative effects included the potential of cracked, chapped, and heavy lips. Before using this lipstick, it strongly suggests to first lubricate your lips.(2)

V. AIM : FORMULATION OF HERBAL LIPSTICK

A. *Goal*

The objective of herbal colours is to alleviate leucoderma, particularly on the lips, for their compounds are non-toxic, very lipophilic, antioxidant, anti-microbial, and anti-inflammatory.

Purplish red, ruby red, beetroot purple, dark violet, pastel red, pale red, rose red, dark purple, orange, and rich violet represent only a few of the original color choices each colorant offers.

The following hues can be joined in various ways to develop various hues.

• Organic and inorganic acids and bases can change coloring into various the colors.(2)

VI. LIP'S ANATOMY

Human lips are an adaptable soft portion of the mouth that promotes interaction and consuming food. The terms "Labium superiorius ores" and "Labium inferiors ores," respectively, frequently appear when referring to both the lower and upper lips. The vermilion zone is the reddish region inside the vermilion border, located where the lips meet the surrounding smooth skin. Cupid's arrow is frequently used to denote her violet lip crown border"In the very center of the highest lip is found a fleshy extension known a tubercle. Numerous titles, which include "labial tubercle," "tuberculum labiisuperioris," and procheilon (which is frequently written prochilon), bring focus on it. With barely three to five little layers, the skin of the lip is incredibly thin in comparison to the main face skin, which may comprise up to seventeen layers. Those with whiter complexions have more melanocytes in their lip skin, which are the cells which create the melanin pigment that gives skin its color. As consequence, the blood vessels peek above the lip the epidermis lending the lips their characteristic red color. Because the skin between the lips includes more melanin and looks darker, this effect is less obvious in those with darker skin tone. The skin of the lip functions as a further barrier between the skin lining the outer layer of the face and the mucous membrane lining the inner part of the mouth. [3]

VII. THE BEST QUALIFICATIONS

1) It should appear smooth and shiny and sweat-free.
2) It can't be hazardous and unpleasant to the lips.
3) It ought not to become dehydrated while being kept.
4) The container should be straightforward to utilize;
5) It must provide the application area a consistent color.
6) There should not be any grit in it.
7) It should not crystallize or melt over an average range of heats[3]

VIII. HERBAL LIPSTICK FEATURES

1) Natural colored lipsticks have minimal or no adverse consequences; they contain natural nutrients that protect healthy lips; and the ingredients are altogether natural and safe to use.[3]
2) They are used for the management of lip leucoderma and are non-toxic, highly lipophilic, anti-oxidants, antibacterial drugs, and anti-inflammatory.[3]
3) Extensive range of color to choose form Bright red red, scarlet red in color, crimson red, dark violet in color pastel red, light red, flower red, profound magenta, dark purple, orange, and even dark violet constitute the earliest color combinations of colorants. These colors can be paired to generate a range various shades.[3]

IX. EXCIPIENT PROFILE

A. *Bees Wax*



FIG.1 BEES WAX

- Synonym: Cranauba combined paraffin wax
- Biological source: The hive structure of the beehive and other bees is utilized for producing this good.
- Family: The Apidae
- Chemical constituents: Hydrogen (13.2%), oxygen (7.5%), and carbon (73.3%) comprise the vast majority of the chemical compounds.
- Uses-

It is used as a thickening agent.
• Beeswax is utilized in hand procedures, lip gloss, and lip balm.
• Beeswax has benefits for the lips.
• Beeswax is frequently employed in cosmetic applications; it helps keep skin nourished. [3]

B. *Castor Oil*



FIG.2 CASTOR OIL

- Synonym: Ricinus oil and linseed oil
- Biological source: - It is a non-volatile lipid oil that originates through the kernels of the communal castor bean.
- Family: - Spurges
- Chemical constituents: The fatty acids and neutral fats compose almost all of its substance
- Uses: - It serves a laxative action. It serves as a hydration chemical. It could contribute to the healing process of lips with cracks. It stimulates sipping more water every day. [2]

1) Olive Oil



Fig.3 Olive Oil

- Synonym: - Oil extracted from vegetable
- Biological source: By squeezing the olives whole and extracting the oil, this water-based fat can be extracted using hazelnuts (the berry of Olea europaea), an indigenous tree produce in the Mediterranean region.
- Family: The Oleaceae
- Chemical constituents: glycerol comprise more than 90 percent of its substance, besides small amounts of glycerin phosphates, organic fatty acids, pigments that are present and sterols
- Uses:
  - It has been used in raised hydration
  - It offers seamless, supple lips.
  - It promotes relief on cracked and cracked lips.
  - It delivers SPF protection safely[2]

2) Coconut Oil



FIG.4 COCONUT OIL

Synonym: - Coconut palm oil, cocos nucifera oil, including copra oil
Biological source: - It is an oil that is obtained by heating the solid, drying component of the coconut's (Cocosnucifera) embryo.
Family: The palmae
Chemical constituents: Caprylic chemical C-8:0 (8%), capric acid C-10:0 (7%), lauric acid C-12:0 (49%), the acid myristic C-14:0 (8%), palmitic acid, C-16:0 (8%), cholesterol C-18:0 (2%), oleic acids C-18:1 (6%) and 2% of C-18:2 linoleic acid (2%), constitute your dietary constitution.
Uses: -

- It preserves skin form harmful UV rays. It simplifies irritation. It serves as a softening component.[2]

3) Beet Root

*Synonym***:** Beta vulgaris Rubra, Chukandar

Biological source: It is constructed by the genuine Beta vulgaris seeds.

Family: The Amaranthaceae

Chemical constituents: It is high in many kinds of nutrients, include potassium, sodium, phosphorus, which calcium, magnesium, iron, iron, copper, and zinc, and comprises several physiologically relevant phytochemicals, such as betalains, or flavonoids, or polyphenols, which saponins, and inorganic nitrate.

Uses: As a dyeing substance it is utilized. It functions as a binder. It lends the lips with an attractive sparkle. It provides the lips a nourishing effect. It also protects lips from falling apart. [2]

4) Vitamin E



FIG.6 VITAMIN E CAPSULE

Synonym: - Tocopherol.

Biological source: - It is a category of compounds found throughout a variety of cuisines.

Chemical constituents: - Eight different compounds are referred to using the following name: α-, β-, γ-, and δ-tocopherols, collectively together with the four tocotrienols that correspond accompany those.

Uses: It repairs wrinkled also superficial lines and operates as a means of preservation. It moisturizes lips. [2]

5) Rose Oil



FIG.7 ROSE OIL

Synonym: Attar of Rose, Rose Otto

Biological source: The blossoms from numerous Rosa creatures, primarily Rose centifolia and Ro9sa damascena mill, are employed for producing it.

Family: The Rosaceae

Chemical constituents: Citronellol, geraniol, nerol, the scent of l phenyl ether alcohol, farnesol, stearoptene, limonene, and eugenol represent some of the most prominent chemical elements that constitute rose oil.

Uses: It functions as a sense of smell. It has been used to generate a scent that is more realistic. It has been used for offering an inviting smell. [2]

X. EXTRACTION METHOD

A. Beetroot Extraction

1) Beetroot was bought from the nearby supermarket.

2) The second beetroot was scrubbed, peeled, and chopped into brittle and homogeneous segments.

3) Stretch it across an area of parchment paper, cover it with a small mesh, and letting it dry for a day beneath the shade.

4) In the case when any moisture has been extracted out of a baking device.

5) Extract a fine powders made out of the drying beetroot.
6) Place it through an extremely fine sieve for screening the powdered component.
7) Look for any particles that are gritty. If necessary, sieve it once more.
8) Pack the powder without metering it. [2]

XI. FORMULATION OF HERBAL LIPSTICK

1) Weigh every component individually.
2) In a saltwater bath, wax & fats are melted separately.
3) The oil foundation is mixed by the substance betanin colouring.
4) Once a component of this is introduced to the heated waxes and gently blended before the required thickness is attained.
5) Following this add multivitamin E and rose oil.
6) Lipstick containers being refilled using the molten mixture. Following becoming harder, it was peeled outside of the mould and deposited inside the cosmetics cover. [2]

XII. EVALUATION PARAMETERS OF HERBAL LIPSTICKS

1) *Melting point:* Understanding this melting point is important because this reveals the maximum extent of proper storage. The capillary tube testing methodology was applied to figure out the point of melting of the created lipstick. The capillary was full and retained in the capillary apparatus, until it first became apparent when the product was melting slowly. With some examination, the goods had melted completely. The melting point to moisture ratio was identified in every formula before the aforementioned process completed three times. [4]
2) *Solubility test:* - To find out its ability to dissolve, the composition of the natural lipstick was dispersed in a variety with solvents. [4]
3) *PH:* - A pH meter was utilized to evaluate the herbal lipstick's the pH level. [4]
4) *Colour:* Lipstick colours are products which utilize an applicators or another application to deliver texture, colour, as well as gloss to the lips. Compounds in lipstick creates allow for precise and controlled application of the colour to the lips. Furthermore, lip colours can have multiple purposes, like hydrating, or some can even contain sunscreen for SPF protection. The determination of secure and appropriate compounds for this intended utilization and purpose assures the quality of lip colour goods. [4]
5) *Breaking point:* - In order to determine the lipstick's power, that breaking temperature was established. Horizontally, the lipstick was set down just under an inch from the supports top. At intervals of thirty seconds, the weight was continuously raised from an established quantity (10 gm), and the weight at which it broke became known as the point of breaking. [4]
6) *Force of application:* - This type of test is utilized for determining the pressure than will have to be applied in an equivalent way. Lipstick with a piece of rustic brown paper were placed on a shadowgraph balancing. [4]
7) *Skin irritation test:* - Administering the medication into the skin for 10 minutes signifies that it is performed. [4]
8) *Perfume stability:* - During 30 days, the medicinal lipstick the painting had been evaluated to determine how it smelled. [4]

XIII. CONCLUSION

A homeopathic lipstick has been applied to the lips in order to improve circulation of blood, get rid of sticky dirt particles, and to maintain the elastic properties of the dermis. The not harmful properties of herbal-based skincare represents one of their greatest benefits. It stimulates the outermost layer of the lip. The lip obtains vital vitamins and minerals from this lipstick. It aids in eliminating of lip folds, dryness, cracking, and wrinkles. Lipstick produces a cooling, calming, and soothing effect on the lip and provides little irritation. In the ideal amount of time, they bring back the lip's natural sheen. Regular use of natural lip improve both the feel and appeal of the lipstick.

The present investigation's the development along with evaluation of herbal cosmetics aim at decreasing the adverse effects brought about by available artificial lipsticks by developing a lipstick with natural components. Pursuant to investigations, a variety of natural components, include beeswax, oil from castor beans, coconut oil, olive oil, beetroot powder, vitamin E, and rose oil, can be used to create herbal lipstick. A colouring compound is beetroot extract. These are preferable to artificial colouring agents, which may exhibit unanticipated negative side effects

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

REFERENCES

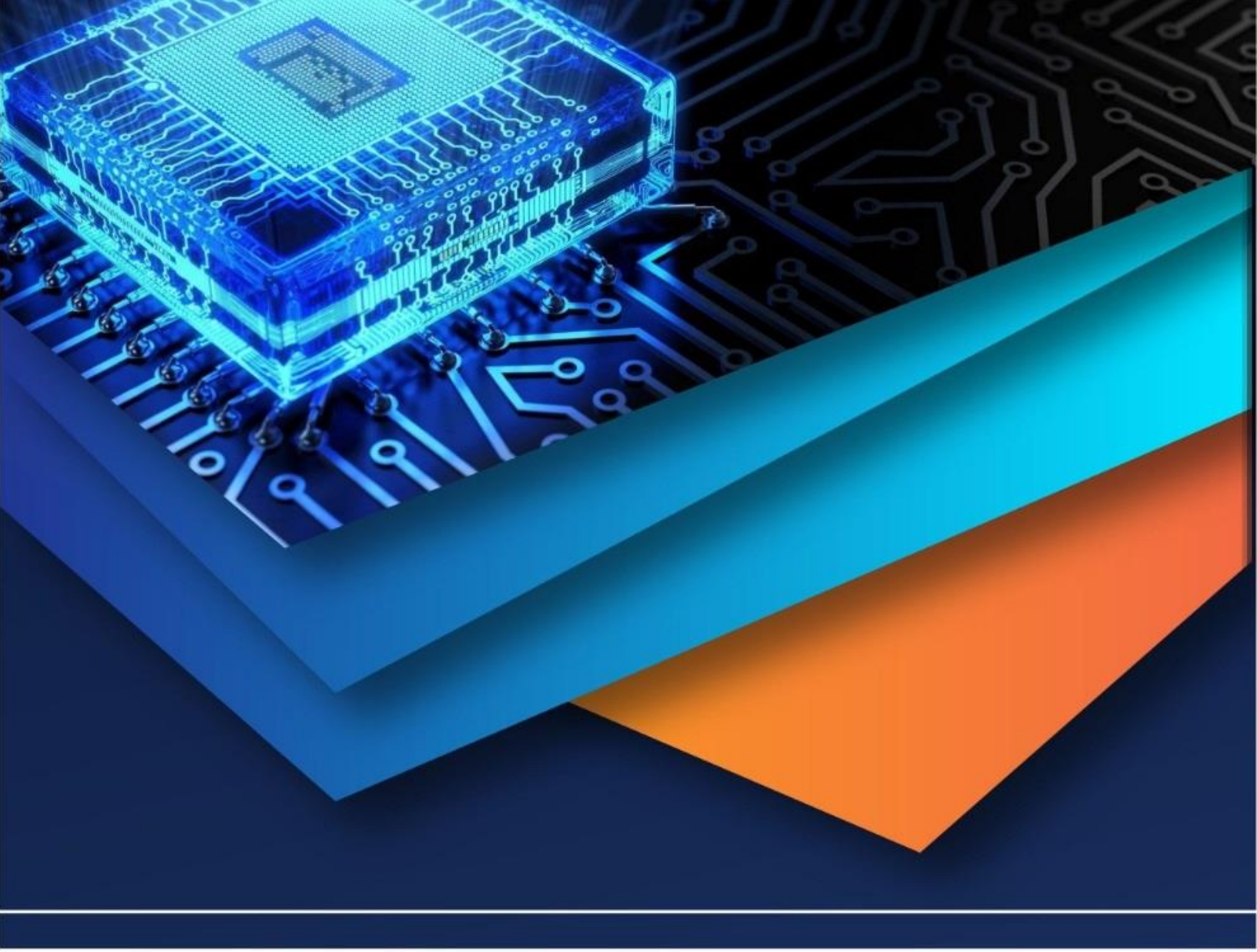
[1] H.Bava Bakrudeen1, Yasmin Khambhaty2, Madurai Suguna Lakshmi3 & Tamilselvi Alagumuthu4*Preparation and evaluation of natural lipstick from beetroot (Beta vulgaris) extract medicated with acyclovir , Indian Journal of Chemical Technology Vol. 31, May 2024, pp. 337-345 DOI: 10.56042/ijct.v31i3.7732.

[2] Deshmukh Swati, Sutar Manisha, Singh Sonia, KanadePawankumar M, PankeDhirej, N. Ganesh, "Formulation and Evaluation of Natural Lipsticks prepared from Bixa Orellana and Beta Vulgaris root extract and their comparative study", International Journal of Pharmacy and Pharmaceutical Sciences, June 2013;5: 68-71.

[3] Uzma s *1, Shayesta k 1, Abdul sameeh 2 , Juveriya M 3, S M Shahidulla 4 Formulation and Evalution of Herbal Lipstick IJCRT Volume 10, Issue 5 May 2022 | ISSN: 2320-2882

[4] Priya Patel, Dikshitkumar Modi* formulation and evalution of herbal lipstick Beet root and carrot juice, IJPPR , Vol.:25, Issue:2

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)