



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

<https://doi.org/10.5281/zenodo.6820491>Available online at: <http://www.iajps.com>

Review Article

**ANTI-ACNE SERUM USING CINNAMOMUM CAMPHORA
(BHIMSENI KAPUR): A REVIEW**M. Z. Shaikh^{1*}, Md. Rageeb Md. Usman¹, Quresh A. I. Shaikh¹^{*1}Department of Zoology, RFNS Senior Science College, Akkalkuwa, Maharashtra, India¹Department of Pharmacognosy, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India**Abstract:**

Skin is the vital barrier against abrasion, chemicals, and pathogens. Proper skin hygiene is the best way to keep your skin healthy. Removing dead cells, dirt and microbes on the surface is key to good hygiene. Herbs are generally defined as non-woody plants, which die after blooming. This definition has been expanded to any of the plants of which parts or whole can be used in medicinal treatments, culinary preparations, nutritional supplementation, or used as a colouring or cosmetic agents. Today's there are number of popular active ingredients that claim to cure such infections, still new active is commonly being identified, studied and promoted, because there is always a room to experiment with new ideas. The present project is also a humble attempt in the same direction, where Cinnamomum Camphora has been evaluated microbiologically to check its anti-microbial property against various infectious problems. Cinnamomum Camphora. is commonly used in Indian traditional medicine as antibacterial, antifungal, antioxidant, wound healing, anti-inflammation. It is reported that the Cinnamomum Camphora has antibacterial activity against some gram-negative bacteria. Therefore, this study aims to evaluate antibacterial properties of Cinnamomum Camphora on the bacteria associated with the skin.

Keywords: *Cinnamomum camphora, Serum, Antibacterial activity, Gram-negative, Traditional Medicine.***Corresponding author:****M. Z. Shaikh,***drmdrageeb@gmail.com*

QR code



Please cite this article in press M. Z. Shaikh et al, *Anti-Acne Serum Using Cinnamomum Camphora (Bhimseni Kapur): A Review.*, Indo Am. J. P. Sci, 2022; 09(7).

INTRODUCTION:

So, what exactly is a serum? It is a concentrate of active ingredients, which targets specific skincare concerns, and the ingredients are powerful, and made up of smaller molecules. The level of active ingredients is higher than in a usual face cream, since the heavier oils and ingredients have been done away with. So while the latter could have around ten per cent of active ingredients, the former has a whopping seventy per cent or more! Serum is a skincare product you can apply to your skin after cleansing but before moisturizing with the intent of delivering powerful ingredients directly into the skin. Serum is particularly suited to this task because it is made up of smaller molecules that can penetrate deeply into the skin and deliver a very high concentration of active ingredients. This makes them a great tool for targeting specific skincare concerns, like wrinkles. Goodbye, signs of aging! [1-2]

Types of face serums and ingredients:

When it comes to choosing a skin serum, it's important to recognize there are different types of serums, as well as specific ingredients to look for based on your goals.

In general, face serums fall into the following categories:

- Anti-aging serums
- Skin-brightening serums
- Hydrating serums
- Free-radical fighting serums
- Acne-prone and sensitive skin serums
- Reparative/texture improvement serums [3].

SKIN:

Skin is the largest sensory and contact organ in the human body. Its surface area in adults is approximately 1.5-2 m. The human skin consists of two main layers, namely the epidermis and dermis. Underneath the dermis, there is a third layer, called the hypodermis, which consist mainly of fat cells and is not considered component of the skin. The skin is a complex organ made up of dead cells, epithelium, connective tissue, muscles, nerves, blood vessels, as well as the so called appendages, including the nails, hair, and glands, such as sebaceous glands, eccrine and apocrine sweat glands.

Epidermis is the outer layer of the skin that functions as a protective layer against external influences. It is composed of five main layer, stratum corneum, is made up of dead cells that continuously shed and are replaced by cells in the adjacent layer. This layer is very thick compared to the others; it contains 15-30 layers of dead cells. Stratum lucidum, the translucent or clear layer, contains 3-5 rows of densely packed flat dead cells. Stratum granulosum, the granulosum layer, consist of 3-5 layers of flattened keratinocytes that begin to die. In this layer, granules can be observed in the cells. Stratum spinosum, the prickle cells layers, contains 8-10 rows of cells. This layer is responsible for lipid and protein synthesis. Stratum basale, is made up of a single layer of cells. Dermis is located under the epidermis, and it functions as a supporting frame to the epidermis, supplying it with nutrients and oxygen via the blood capillary [4-5].

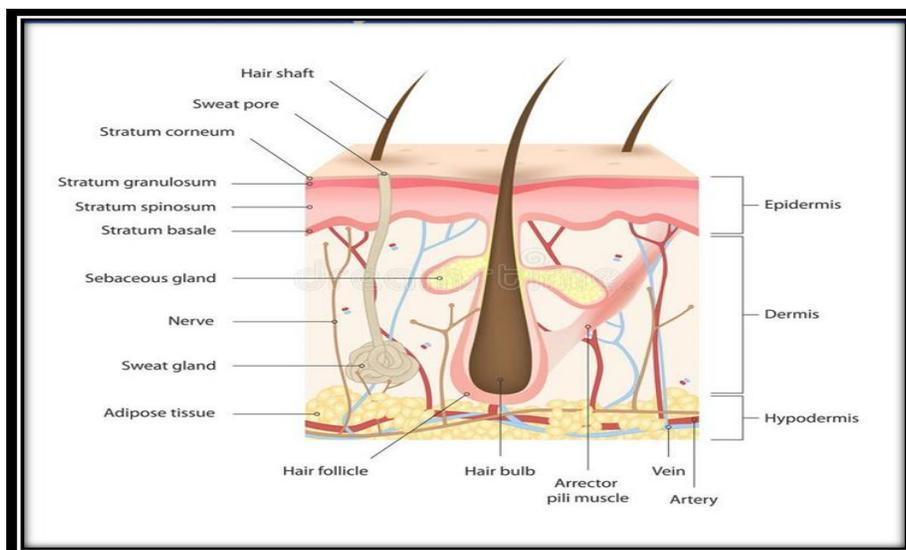


Fig. 1: Structure of skin

Oily skin:

Oily skin is caused by over-active sebaceous glands, that produce a substance called sebum, a naturally healthy skin lubricant. A high glycemic-index diet and dairy products (except for cheese) consumption increase IGF-1 generation, which in turn increases sebum production. Over washing the skin does not cause sebum overproduction but may cause dryness.

When the skin produces excessive sebum, it becomes heavy and thick in texture, known as oily skin. Oily skin is typified by shininess, blemishes and pimples. The oily-skin type is not necessarily bad, since such skin is less prone to wrinkling, or other signs of ageing, because the oil helps to keep needed moisture locked into the epidermis (outermost layer of skin). The negative aspect of the oily-skin type is that oily complexions are especially susceptible to clogged pores, blackheads, and buildup of dead skin cells on the surface of the skin. Oily skin can be sallow and rough in texture and tends to have large, clearly visible pores everywhere, except around the eyes and neck [6-7].

Acne:

Acne could even be a multifactorial chronic disease of pilosebaceous units. Propionibacterium acnes and staphylococcus epidermidis are considered because of the foremost skin bacteria that cause the formation of acne. Acne is that the most typical reasonably skin condition. It's most widespread among older, children, teenagers, and adults. Around 80% of 11 to 30-year-olds are ill with acne. Most acne cases in girls occur between the ages of 14 to 17 and in boys, the condition is commonest in 16 to 19 years old.

Herbal Anti-acne cream was prepared using extracts of the plants Aeglemarmelos. The plant has been reported within the literature having good anti-microbial, anti-oxidant, anti-bacterial, and anti-inflammatory activity. Acne is believed to be caused by changes in hormones that are triggered during puberty. Acne can cause great distress and harm a person's quality of life and self-esteem. Acne is additionally called acne could even be a protracted run disease of the skin that happens when hair follicles are blocked with dead skin cells and oil from the skin. It's characterized by blackheads or whiteheads, pimples, oily skin, and possible scarring. If primarily affect the world of the skin with a comparatively high number of oil glands including the face, upper part of the chest, and back. The resulting appearance may find yourself in anxiety, reduced self-esteem [8-10].

Clinical features:**The lesions:**

The first feature of the disorder is an increased rate of sebum secretion at puberty, making the skin look greasy (seborrhea). Blackheads or comedones usually accompany the oiliness. They regularly occur over the perimeters of the nose and the forehead (but can occur anywhere). Comedones are follicular plugs composed of follicular debris, desquamated corneocytes, and compacted sebum. they need pigmented tips from the melanin pigment deposited by the follicular epithelium at this level Accompanying the visible comedones are numerous invisible comedones, many of which don't have pigmented tips.



Fig. 2: Multiple comedones and seborrhea in acne.



Fig. 3: Multiple comedons in acne note the blackened tips From Melanin

Inflamed, reddened papules develop from blocked follicles. These are a shade of bright red, often irregular in shape and quite tender to the touch and maybe set quite deep within the skin. Sometimes they develop as at their tips (pustules), but these may additionally arise independently. In an exceedingly only a few patients, variety of the papules become quite large and persist for long periods – they're then observed as nodules in severely affected patients, the nodules liquefy centrally so fluctuant cysts are formed. In reality, the lesions are pseudocysts, as they have no epithelial lining. These lesions are seen within the foremost severely affected patients, which they cause the worst scarring. This kind of severe acne is believed of as cystic or nodule cystic acne and should be very disabling and disfiguring. When the massive nodules and cysts eventually subside, they leave in their wake firm,

fibrotic, nodular scars, which sometimes become hypertrophic or perhaps keloidal. The scars are often quite irregular and have an inclination to create 'bridges' Even the smaller inflamed papules can cause scars and these tend to be pock-like or are triangular indentations there is a really rare and severe quite cystic acne named as acne fulminant during which the acne lesions quite suddenly become very inflamed. At the identical time, the affected individual is unwell and develops fever and arthralgia. Laboratory investigation often reveals a polymorph nuclear leukocytosis and odd osteolytic lesions within the bony skeleton. The rationale for this disorder isn't clear, although it has been suggested that it's due to the presence of a vasculitis that's somehow precipitated as a result of the underlying acne.



Fig. 4: Acne Papules

Epidemiology:

About 70 percent of the population develops a degree of clinically evident acne at some point during adolescence and early adult life, but perhaps only 10–20 percent request medical attention for the matter. This proportion varies in numerous parts of the world, starting at the racial mixture, affluence, and also sophistication of medical services. The variations in incidence in numerous ethnic groups haven't been well characterized, although it does appear that Eskimos and Japanese experience less

acne than do Western Caucasians. Onset is often at puberty or slightly later, although many patients don't appear troubled until the age of 16 or 17 years. Men appear to be affected earlier and more severely than women. Older age groups aren't immune and it certainly isn't rare to develop acne within the sixth, seventh, or perhaps the eighth decade. Acne lesions sometimes appear on the cheeks and chin of infants some weeks or months old and even slightly later than that this infantile acne is often trivial and short-lived, but can occasionally be troublesome [11-14].

A Special Variety of Acne:

A) Acne from drugs and chemical agents:

Androgens provide the foremost normal 'drive' to the sebaceous glands. It's the increased secretion of these hormones that's in command of the increased sebum secretion at puberty. When given therapeutically for any reason, they'll also cause an eruption of acne spots. Glucocorticoids, like prednisolone, when given to suppress the signs of arthritis or another chronic inflammation, can even induce troublesome acne why this

might so are adequately explained. Glucocorticoids don't seem to increase the speed of sebum secretion, and also the acne that results are curiously monomorphic therein sheets of acne lesions appear (unlike ordinary acne) all at the identical stage of development. Interestingly, corticosteroid creams can, uncommonly, also cause acne spots at the situation of the applying. Paradoxically, corticosteroids are occasionally used for his or her anti-inflammatory action within the treatment of acne.



Fig. 5: Infantile Acne



Fig. 6: Steroid Acne

B) Oil acne:

Workers who inherit contact with lubricating and cutting oils develop an acne-like eruption at the sites of contact, consisting of small papules, pustules, and comedones. This is often observed on the fronts of the thighs and forearms, where oil-soaked overalls are available in contact with the skin. An analogous 'acne form folliculitis' sometimes arises at sites of application of tar-containing ointments during the treatment of skin diseases some cosmetics seem to aggravate or perhaps cause acne. this is often because they generally contain comedo-inducing (comedogenic) agents, like cocoa butter, isopropyl myristate and derivatives, and a few mineral oils, which may induce acne. This

cosmetic acne is far less of controversy now that cosmetic manufacturers are conscious of it, as they avoid those constituents that they know can cause the matter and test new products on human volunteers if there's any doubt

C) Chloracne:

Chloracne is a very severe type of industrial acne thanks to exposure to complex chlorinated naphthalenic compounds and dioxin. Epidemics have occurred after industrial accidents like occurred in Bhopal in India, within which the population round the factory was affected. The compounds responsible are extremely potent, and lesions still develop for months after exposure. Typically, numerous large,

cystic-type lesions occur during this type of industrial acne-causing massive cosmetic disability. It's worth noting that it's thought that the Ukrainian President

(Viktor Yushchenko) was poisoned by dioxin, causing a dramatic change in appearance.



Fig. 7: Chloracne

D) Excoriated acne:

This disorder is most frequently seen in young women. Small acne spots around the chin, forehead, and on the jawline are picked, squeezed, and otherwise altered by manual interference. The resulting papules are crusted and infrequently more inflamed than routine acne spots. Often, the patients have little true acne and therefore the main cosmetic problem is that the results of the labor of their fingers! Mostly this can be a minor problem that may be improved by counseling but there are some more seriously affected patients whose problem is persistent.

Pathology, etiology, and pathogenesis:

Histologically, the essential features are those of folliculitis with considerable inflammation. The precise histological picture depends on the stage reached at the time of biopsy. Usually, it's possible to create out the remnants of a ruptured follicle. Within the earliest stages, a follicular plug of the horn (comedone) is identified. Later, fragments of horn appear to possess provoked a violent mixed inflammatory reaction with many polymorphs and, in places, a granulomatous reaction with many huge cells and histiocytes. In older lesions, plant tissue is deposited, indicating scar formation. What will we believe is that the sequence of events? Within the first place, patients with acne have a better sebum secretion rate (SER) compared with matched. Control subjects and there's some correlation between the extent of the rise within the SER and also this verity of the acne. Acne first appears at puberty, at which era there's an eruption within the extent of circulating androgens.

Eunuchs aren't getting acne, and also the administration of testosterone provokes the looks of acne lesions. Sebaceous glands are predominantly 'androgen driven' and few other influences are as important. Follicular obstruction also plays a vital role within the development of acne lesions. Comedones are early lesions and microscopically it's commonplace to look out horny plugs within the follicular canals. Changes are described within the follicular, epithelium suggesting that there is abnormal keratinization at the mouth of the follicle. Pathogenic bacteria aren't found in acne lesions and are not involved within the pathogenesis. It's possible, nonetheless, that the standard flora incorporates a task to play within the explanation for the disease. The flora consists of Gram-positive cocci – the micrococci (also called *Staphylococcus epidermidis*) – and Gram-positive bacteria – *Propionibacterium acnes*. Also, there are yeast-like microorganisms called *Pityrosporum ovale*. The propionibacteria are microaerophilic and lipophilic so they're ideally suited to living within the depths of the follicle in an oily milieu, and it isn't surprising that they massively increase in numbers during puberty when their food supply, within the type of sebum, increases. The standard follicular flora is additionally in charge of hydrolyzing the lipid esters of sebum, liberating potentially irritating fatty acids that damage the follicles. The constituents of sebum and skin surface lipid (after bacterial hydrolysis) are given in how can these observations be linked? An acceptable hypothesis is about out, during which it's suggested that the important inflammatory lesions of acne are the results of follicular leakage and eventually rupture [15-17].

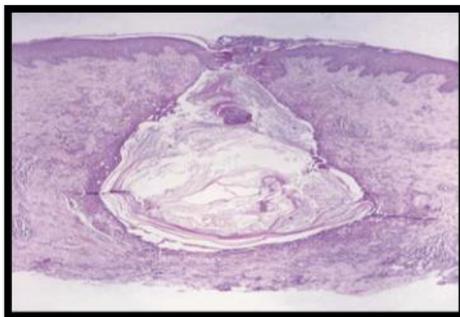


Fig. 8: Pathology of inflamed acne papules showing ruptured follicle and a dense inflammatory cell.

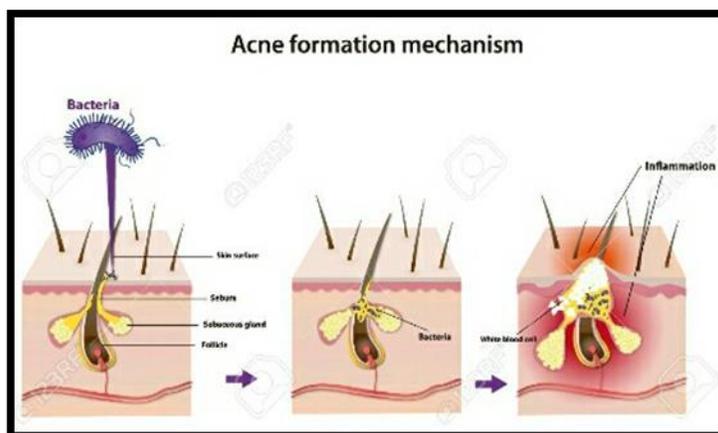


Fig. 9: Mechanism action of acne

Three pathogenic factors are closely involved in the mechanism of acne with a sequence beginning with seborrhea, then sebum retention, and finally inflammation. The sebaceous gland is a target of androgens. Acne may be related to an excessive sensitivity of sebaceous end-organs to androgens. However, in women, an ovarian or adrenal hyperandrogenism may be implicated. The cause of sebum retention is the hyperkeratinisation of the infra infundibulum of the sebaceous duct. Many factors, particularly the chemical composition of sebum in acne and the androgens are responsible for this hyperkeratinisation. The inflammation is related to the inflammatory role of the numerous enzymes of

Propionibacterium acnes and to the chemotactism of neutrophils.

ACTIVE PROFILE:

Formulation and Development of Anti acne Serum using Cinnamomum Camphora:

Cinnamomum Camphora:

Biological Source:

Camphor, an isoprenoid compound classified as a terpenoid ketone, is used in incense and certain medicinal compounds. It is a natural substance obtained from the camphor laurel (*Cinnamomum camphora*), a species of evergreen Belongings to Family-*Lauraceae*



Fig. 10: *Cinnamomum Camphora* Leaves



Fig. 11: Bhimsenikapur (*Cinnamomum Camphora*)

Chemical name of camphor:

1,7,7-Trimethylbicyclo[2.2.1] heptan-2-one Camphor is a cyclic monoterpene ketone that is bornane bearing an oxo substituent at position 2. A naturally occurring monoterpenoid. It has a role as a plant metabolite. It is a bornanemonoterpenoid and a cyclic monoterpene ketone.

Bhimseni Camphor:

It is the original camphor which is derived from tree/plant/weeds. It is otherwise known as Cini Camphor, Pacha Kapoor, Patri Camphor, Nagi Karpura, Baras Camphora, Janani Kapoor (D. Camphora), and desikapoor. Thus, this Kapoor is umbrella category and all edible camphor fall under this. Since Bhimsenikapoor is derived from tree

named *Cinnamomum Camphora* or Kapoor tree it is also Pacha i.e. edible camphor. The camphor is made by the distillation process from the leaves & weeds of the tree. It is best for medicinal and religious purposes and Ayurvedic texts refer to this camphor. Due to marak properties it can invoke the destroyer principle of the deity during worship. This Kapoor is getting imported in India from China, Indonesia, Bornio, Java, Sumatra etc. The real Bhimseni camphor is always unshaped. The Bhimsenikapoor is also 2 types, one is edible and another is non-edible. So always try to see the cover of the packet at the time of purchasing that the product is edible or not. And it breaks very easily.

Given below some pics are of Bhimseni camphor.



Fig.12: Original Bhimseni Camphor

Artificial Camphor:

Non edible camphor or synthetic camphor which is we get nowadays. This camphor is derived from Turpentine and is in fact Camphene. It is water insoluble and should not be used for dietary or medicinal purpose. It can be cheaper substitute for edible camphor in Surma, Kajal or Vaporub hence

almost all commercial topical products use synthetic/artificial camphor and of course it being rampantly used for religious purpose. The shapes are made from the camphor powder. It's very much cheap as compare to the Bhimseni camphor.

Given below some pics are of artificial/synthetic camphor & powder.



Fig. 13: Artificial/Synthetic Camphor & Powder.

What we generally get in the market:

We get the camphor generally in the grossery & puja shops. What we buy from the shop most of the people do not know the composition of that packaged camphor. It is the composition of the synthetic camphor powder, wax and the most dangerous hexamine powder. We just burn it in our home and temple. The bad side effects of hexamine and synthetic camphor are

- The fume reduces the reproductive system of the persons.
- The dangerous fumes create the cancer in your body.
- It can affect your eyes, nose, throat & lungs.
- It causes nausea, abdominal, vomiting & diarrhea.



Hexamine Powder

Synthetic Camphor powder

Wax powder

There is no much bad effect of the wax because it cannot burn and just deposited in the pot in which we just burn the synthetic camphor tablet.

So there are some video links how to know the Bhimseni camphor how it's made and how much it is useful for our Health, Vastu, Planets, mosquito repellent etc.

Bhimseni Camphor Features:

Food Grade Camphor:

The camphor flakes are 100% Pure and Edible, which is directly extract from the Organic Camphor Trees. You can use this for making of several dishes like Sattu, Sweets, curries. You can use for your health benefits.

For Puja & Vastu:

You can use in your daily Pooja, meditation and Homa by its purity and fragrance attracts Positive Energies. MaaLaxmi very much pleased and attracted by the scent emanating from natural Kapoor. So that money will flow to your home. If you have the Vastu problem in your home then just keep some pieces of pure camphor in a specific place of your home and after some days when the camphor pieces will evaporate then keep some more pieces in that place. Do it continuously.

How to use for health:

- Mix the Bhimseni camphor powder with coconut oil and for strong & growth of your hair.
- For curing your piles just use a little bit of camphor tablet and rub with the ripe banana and eat it in empty stomach.
- From relief of ear pain just mix little bit camphor powder with Tulsi leaves drops and use in ear.
- Relief from headache just mix little bit camphor powder with lemon juice and rub on forehead.

- For increase the digestive system take 2 gm camphor weekly in your food. It helps for secretion of digestive juices and enzymes for the process of digestion and helps to release the gas from your body.
- For belly pain mix jaiphal powder, camphor & turmeric in same proportion and add some water then rub the paste on belly then you will feel better.
- Take little bit camphor powder with water and use on the burning part & pimples of your body. Does it for 2 to 3 time then you will see the difference and feel better.

Ayurvedic Uses & Benefits of Camphor:

In the ancient science of Ayurveda, it is also referred to as Chandra bhasma (moon powder). As per Ayurvedictext "Raj Nighantu", there are about 14 different types of Karpura (Kapur), out of those, **Bhimseni Karpura is one the best variant for the therapeutic purposes.** It is light (laghu), sheet virya (cooling in nature), ruksha (drying properties), bitter, pungent and sweet in taste, helps in balancing Pitta and KaphaDosha easily. Camphor is a rare herb that despite being a coolant, balances KaphaDosha, and reduces fat and balances Vata induced pains and aches. It helps to control the inflammation and adds a soothing effect on the body. Camphor has a healing effect on the skin. Due to its cooling and soothing effect, it controls skin outbreaks or rashes when applied locally over the affected area. **It effectively treats acne and acne scars**, when used along with coconut oil or olive oil. camphor has been used traditionally for many years as a remedy for relief of pain, inflammation and skin irritation. kapur is a natural white crystalline substance obtained through steam distillation, purification and sublimation of wood, twigs and barks of Cinnamomum camphora (L.) J.Presl, a green tree with shiny alternate leaves mainly found in Japan and China and cultivated in India with a height of 50-60 feet (Khare, 2007).

Kapoor (camphor) has been used for various therapeutic purposes as analgesic, antiseptic, antispasmodic, antipruritic, anti-inflammatory, anti-infective, expectorant and nasal decongestant (Ghani, YNM; Baghdadi, 2005). It is used as one of the ingredients in many formulations such as balms, oils, liniments and creams. There are many scientific reports which have reported that camphor has anticancer, anthelmintic, antibacterial, antifungal, and hepatoprotective activities. Medicinal plants are the main source of development of newer drugs. They are used in raw form in Indian traditional and alternative medicine as therapeutics or treatment of diseases. Camphor, a plant-origin medicine, had attracted the attention of scientists, researchers and academicians in the past. There is a long list of scientific studies focused on its pharmacology and pharmacokinetics conducted on its different parts such as bark, wood, leaves, twigs, etc. The study of leave extract has shown protective effect against DNA damage as biochemical changes in mice.

Cinnamomum camphora is a plant that contains volatile oil comprising camphor, safrol, linalool, eugenol, etc. The oil has antimicrobial activity against many pathogens. It acts as reflex expectorant and is helpful in respiration as well as circulation. Topically, it is used as a rubefacient and mild analgesic. In Ayurvedic medicine, it is used against a wide spectrum of diseases like bronchitis, cold, congestion, diarrhoea, dysentery, oedema, flu, gas, metabolic and heart strengthening, hiccups, indigestion, liver problems, menorrhagia, melancholy, muscle tension, nausea and vomiting. It assists uterine contractions during labour and menstrual pain from low metabolic function. For external applications, it is used for relieving headaches and pain. In Unani Medicine, it is used as a cephalic tonic and cardiac stimulant and for treatment of cough.

Phytoconstituent:

D-camphor (51.3%), 1,8-cineole (4.3%), α -terpineol (3.8%), and 3-methyl-2-butenic acid, oct-3-en-2-yl ester (3.1%), while safrole (29.0%), D-camphor (28.1%), linalool (12.8%), and 1,8-cineole (5.3%) - Dimethyl-4-octanone 0.1% Cadina-1(10),4-diene 0.1% 3,7,11-Trimethyl-3-hydroxy-6,10-dodecadien-1-yl acetate 4.5% Oxalic acid, di(1-menthyl) ester

Volatile/ Essential oils:

An essential oil is a concentrated hydrophobic liquid containing volatile (easily evaporated at normal temperatures) chemical compounds from plants. Essential oils are also known as volatile oils, ethereal

oils, aetheroleum, or simply as the oil of the plant from which they were extracted, such as oil of clove. An essential oil is "essential" in the sense that it contains the "essence of" the plant's fragrance—the characteristic fragrance of the plant from which it is derived. The term "essential" used here does not mean indispensable or usable by the human body, as with the terms essential amino acid or essential fatty acid, which are so called because they are nutritionally required by a living organism.

Essential oils are generally extracted by distillation, often by using steam. Other processes include expression, solvent extraction, absolute oil extraction, resin tapping, wax embedding, and cold pressing. They are used in perfumes, cosmetics, soaps, air fresheners and other products, for flavoring food and drink, and for adding scents to incense and household cleaning products.

Essential oils are often used for aromatherapy, a form of alternative medicine in which healing effects are ascribed to aromatic compounds. Aromatherapy may be useful to induce relaxation, but there is not sufficient evidence that essential oils can effectively treat any condition. Improper use of essential oils may cause harm including allergic reactions, inflammation and skin irritation, and children may be particularly susceptible to the toxic effects of improper use. Essential oils can be poisonous if ingested or absorbed through the skin [17-18].

SUMMARY:

There is urgent need for Serum production and from local raw materials in order to supplement the existing ones. I recommend more research to be carried out on extraction of *Cinnamomum Camphora* essential oil and its formulation from vast variety of oil bearing plants in our ecosystem. Further work should be carried out to analyse the *Cinnamomum Camphora* oil as this could not be done due to time constraint. Characterization of *Cinnamomum Camphora* components should be made in order to determine which is responsible for the characteristics of Pungent and Aromatic odor. Furthermore, large scale extraction of oil from *Cinnamomum Camphora* through enzymatic process should be explored, feasibility studies on the economic viability of the process should be conducted.

CONCLUSION:

From above discussion it is concluded that *Cinnamomum Camphora* Extract had antimicrobial property against *Propionibacterium acnes*. From the above experimental work, the *Cinnamomum*

Camphora Extract showing good activity against *Propionibacterium acnes*.

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