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A Review on Cosmeceuticals

[1]Priyanshu, [2]Anish Yadav, [3]Raju Gupta [4]Mrs. Smita Verma, [5]Mrs.Kiran Singh

1,2,3 Bachelor of Pharmacy, 4 Associate Professor, 5 Principal
Nirmala Devi Pharmacy College NayansandJaunpur Uttar Pradesh 222133
Dr. A.P.J. Abdul Kalam Technical University, Lucknow Uttar Pradesh

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ABSTRACT-Cosme are mainly in the form of emulsions, ointments or solutions; some come as powder.In EU regulations, a makeup item is defined as any material or preparation meant to come into touch with the different outerparts of the human being (with the exception of mucous membranes and internal organs) for reasons of smell, cleansing, perfuming, colouring and maintaining bodily excretions. The key thing is removing dirt and spraying fragrance;stuffs for colouring only change one's image via asmearing paint technique or after exquisitely preparing patients' whether they perspired, women put on makeup. Thanks to this science advancement through which the operation with active carriers and ingredients breaks right through this long process by which cosmetic products work their magicThis is why when Reed and Kingman describe such products as cosmeceuticals, they are saying that the lines are blurring between cosmetics and pharmaceuticals.Theword cosmeceuticals,ten yearsagowithout past legal significance, was coined inthe late 1970s. Thedress-up Toihygiene products called cosmeceuticalsin fact can induce actual changes on skin physiology, reducing orenhancing transepidermal water loss, raising epidermal fired cohesion and turnover, stimulating inflammation by changing anti inflammatory activities of corticoids (like gendicons might), shifting surface They are said to have medicinal or drug-like effects for these reasons. Naturally, their effectiveness on mild skin conditions, so in abnormal cases, in vitro and in vivo research must be performed to demonstrate it. However, emulsifiers, preservatives, and other compounds included in their formulations have the potential to cause side effects, including allergy and/or sensitization phenomena, when used in combination. Furthermore, a large number of these goods' chemicals and packaging are not biodegradable. We would want to present a novel class of cosmeceuticals in this work that are made of biodegradable nonwoven tissues. Depending on the active ingredient(s) utilized, these cosmeceutical tissues made from natural fibres may bind various active ingredients and therefore become useful as antibacterial, anti-inflammatory, sun- protective, whitening, or anti-aging remedies. They are not made with preservatives, emulsifiers, colours, or other ingredients like regular cosmetics. The active elements that are bound in the fibres' can be gradually released by applying the dried tissue to damp skin and leaving it there for around 30 minutes. It's interesting to note that the tissue, which functions as a carrier, possesses antibacterial and anti-inflammatory polymers called chitin and lignin that contribute to its own effectiveness. The human microbiotake enzymes hydrolyze them to produce components that are used as energy or nutrition for cells.This essaywilldiscuss some ofthe scientificfindingsthatlend credenceto thenew class of biodegradable makeup products called face mask sheets.

Keywords- Stratum corneum, Azelaic acid, Kojic acid, Retinyl Palmitate.

INTRODUCTION-

1. It is for this reason thatthese are said to offermedical or drug-like properties. Of course,it is necessary to prove their effectiveness in the treatment of modest abnormalities or minor skin disorders by application tests in cell cultures and the testing body.
2. Of course their efficacy in treating Studies conducted in vitro or in vivo are required to demonstrate modest skin abnormalities and diseases.
3. Ofcourse,their effectivenessagainst light skindisordersormild abnormalitiesofthe skin still has to be proven in vitro and in vivo experiments.

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4. Of course, it is necessary to prove their effectiveness in the treatment of minor skin disorders or mild abnormalities byapplication tests in cell cultures and the testing body.

5. Buttheir formulations, inturn, include compounds suchas preservatives and emulsifiers, all of which the body may receive by cumulative use and response to these compounds replete with adverse reactions, including sensitization and allergy symptoms. Besides, a great.This is what we willtryto do here. Focusing onbiodegradable nonwoventissues, in this study we review an unfamiliar new category of cosmeceuticals which has hitherto never been mentioned. These cosmeceutical tissues are made by the use of natural fibers. Thereforetheycanbe miscoded withdifferent active ingredients, and become effective as being antibacterial, anti-inflammatory, sun protectors, or whitening agents (for example) onbasis how which equipments were used in preparing them. Theyarealso different from the standard cosmetics, in that they include no preservatives, emulsifiers or additives. These can be put on as dry tissues to wet skin. These stay in place for 30 min or so, releasing active ingredients that have been trapped inside the fibers slowly. toi worth noting that this tissue, playing the part of a transport medium for active ingredients, is effective on its own in two senses; namely, via chitin and lignin polymers with an antibacterial and anti-inflammatory activity. When broken down by enzymes produced within the human macrobiotic (such as cellulose), these produce ingredients used for cell nourishment or energy. The Some parts of the scientific research results which arerelevant to this new category of biodegradable cosmetics products that is facial mask sheets will be introduced inthis paper. But during the entire foodR &Dprocessthere are many steps that have to be taken before you can introduce designed ingredients to the laboratory level. As for its heat stability and color induction, apart from stability and aesthetic property, in giving it different properties of functionality on the part of the final formulation, there are too many other factors involved. Amongst those factors are the compatibility of ingredients, with their microbiological and regulatory requirements also taken into consideration; ingredient availability and quality and their costs. Also, the cosmetic product has to be designed by giving consideration as to how easily it can be manufactured, marketed and shipped, because this is also covered under patents.

Through the use of one or more preservatives, as well as compounds which provide emulsifying agents and solubilise fragrances — usually essential oils in their own right, most often spread uniformly and quickly via powder –, there are numerous formulas by means ofwhich creams can be produced. The most common type ofdeliverysystemused for cosmetic products is emulsion— It is worthnoting, however, that preservatives and emulsifiers can be irritating to the skin if they are not used properly. For since ravior;s a spice essential for cooking, leviers impure levier simple in gemulsor:-. anyway the method of emulsification allows the chemist to turn drinks for water solution. dispersions and emulsions of oily, waxy and powdery substances [3]. Actually emulsifiers are those compounds thatcan reducesurface tension, without which oil could never be dispersed in water. They can eithermake an emulsion or just solubilise fragrance and therefore really have no choice but to exist. Being hydrophobic and lipophilic at the same time, these emulsifiers shouldactually behave like a milder form

1. Cosmetic Products

Bya definition ofthe [4,5] the end things which were “any material or preparation meant to come into contact with the different external body parts (nails, hair, and epidermis)with the sole or primary intention of cleaning, scenting, altering, or maintaining them in excellent shape. The advancement of science in active substances and carriers serves to simplify the cosmetics distribution and operation systems. However, hypothetically speaking, perhaps they also create possibilities of changing skin physiology for the better and increasing product effectiveness [6]. But to date this is just a term coined by Reed in 1962 [7] and redefined by Kingman about 30 odd years later. It has no legal meaning. In addition, anytype of cosmetic, including the latest concept cosmeceuticals—not only those with skin barrier effects that are caused by emulsifiers which control transepidermal water loss as well as keratinocytes cohesion and turnover-can induce such a change in skin. Additionally, cosmetics and derivatives thereof without drug properties (cosmetic or cosmeceuticals) [7,10] that have beneficial effects

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similar to drugs are also capable of controlling the inflammatory cascade and treating diseased skin. Disappointingly, these products also affect the[1]. ###Flagged words:These;alter. Secondly, because theyare not free from undesired adulterants such as preservatives and fragrances, they may have side effects.

Chemicals used for their formulation. Testing for cosmetics and cosmeceuticals needs tobe thoroughly reliable, both in terms of effectiveness (in vitro), cell cultures) and safety (in vivo, with healthy or mildly abnormal skin). The testing procedures must also be scientifically correct [12], clinically correct [13]. In fact, while adverse serious events reported by EU and USA guidelines for cosmetics seem to be of low frequency [14,15], the cross allergy phenomenon along with the human sensitization that result from preservatives, emulsifiers, flavours or colorants combined with all chemicals found in cosmetics foods household products and other professional products are on the increase worldwide only The preservatives paragraph deserves some special attention, for it should be pointed out that the class ofactive molecules parables (4-hydroxy benzoic acid and its derivatives), which are present in many consumer products appears to have been under attack for years by the mass media. Therefore, one would think that everyone isfrightened out of their wits about them, despite the fact In fact, there is every reason to believe that if we want healthy lives and a healthy environment with rich biodiversity, these chemicals and others like them must be used much less in our everydayaffairs.

This paper is an introduction to a new class of cosmeceuticals--products that combine chitin nanofibrils and nanolignin in non-biodegradable but biocompatible nonwoven tissues. They thereby can be made. They are natural fibers that can tightly and slowly deliver the active components entrapped at various dosages over a set period of time. As facial masks sheets(Figure1), they thus function as portablet issue-carriers. Itscarrier and ingredient functions thus allow these innovative products to be used, bacterial, anti-inflammatory, sun protection, whitening (lightening) or age spot (sallow spots) reducing cosmeceuticals based on the effectiveness of the chosen ingredients [3].

2. Innovation in Industrial R & D and Bionano technology

The foundation of innovation and society is R&D. development is needed to keep pushing forward in order to catch up with progress. Nonetheless, how could there be growth without innovation?Stillthis is the question. As Baseman and Pier observe [27], "the two languages are research and technological innovation." One discovers new lands; the other builds roads and buildings to accommodate people's residence. Firstly, is the essential prerequisite for progress. The design of criteria for producing scientific knowledge matches up to this. On the other hand there is applied research, which connects basic and industrial research [27]. Therefore, in nova cools by industrial research.

Thus must change from some kind of applied re for they are, after all, an unavoidable result of company survival. [28] In a sense, the word innovation means developing and engineering of new products, processes and methods which leads to creation of all these new businesses and jobs that we must have in order to raise productivity. Therefore, the relationship among people and the passage of information about these new-bio nanotechnologies of advanced materials have led to a transformation not only in manufacturing and labour but also other economic activities (including whether theyoccur domestically or overseas) [27,29]. This is why the innovative economies are more resilient, better able to cope with change, and can support higher standards of living [29- 30]. Because in the last 20 years the most advanced steps of molecular biology and bio nanotechnology have all migrated from academia to industry, both pharmaceutical and cosmetic industries have been enjoying rapid progress concurrently. As a result, the resulting and future technical knowledge is now and in the future an active force which will assume greater importance through more added innovations for skin care, hair care and nail care cosmetic industries. In this way, on the one hand these innovation enhance product safety potentials while at the same time they pass a functional element to the goods which becomes an essential evaluation factor. In this environment, bio nanotechnology and bio economy have become an extraordinary growth area becausethey rely on safe bio polymeric resources as materials [29-30]. What people have now overlooked is that these natural compounds are actually obtained through waste materials and sustainable processes, and have been proven to eliminate or significantly reduce the generation of substances which are harmful to both human life (in the narrow sense), animal life, plant life, and environmental conditions in general [31]. Moreover, the emerging trend toward a clean label as well as other

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2.**Natural Biopolymers**

Made up of monomers produced by living organisms. These monomer units are arranged by covalent bonds to form polymeric larger structures [32,33]. They account for the bulk (about 75 %) of all organic

Or reserve material, starch taken from plant biomass and chitin extracted from fishery byproducts or the storage compound glycogen used directly reconstructed lignin (and cellulose) which is also derived from plant residues. All except glycogen, of course, can be used to make nonwoven innovative tissues and films and all manner of other useful products. These can be simply extracted by plants or on the other hand they can be produced artificially, being recovered from natural sources [33, 34]. Food for thought Looking at it one way, starch is the third on the human dietary-Food chain after oxygen and water but before crude protein. It is also one of a small family of storage polysaccharides found in plants such as cassava or sweet potato. Cellulose and lignin in trutharethe most abundant organic substances occurring throughout the plant kingdom2. Natural Biopolymers

It is one of the major components, along with proteins, carbohydrates, and lipids that makes up the exoskeleton found around various species of invertebrates. The plasma membrane surrounding plant cells (and those found inAnd overall, all polysaccharides are extensively distributed throughout the biosphere, playing significant roles in the arrangement of living organisms as energy stocks and structural supports [33]. Theirhuge-volume making out of renewable materials and tremendous use by the consumers will help substitute nonbiodegradable petroleum compounds, and preserve on this planet for future generations the ecosystem that human beings rely on.

2.**The Market for Cosmetics and Active Ingredients**

Detailing the features and function a lities of innovative cosmetics made from natural fibers and nonwovent issue, it's convenient to point out some market information on requested classes of consumer-demanded cosmetic products, and for their formulation some main active ingredients used.as well as sun-blocking cremes is also a factor driving the cosmetics market around the world. High birth rates have resulted in aging of the population worldwide today. Furthermore, growing awareness about health problems caused by chemical substances has led to greater attention being paid to ingredients used in cosmetics recently;Starts with active ingredients As for the processing value chain, it depends on what type of cosmetics they're. A far cry from the retail cosmetics industry is the ingredients used bytheir manufacturers, which typicallycombine a single chemicalor converselyare chemical combinations, aimed each time at a special function theyhave to fulfill. Therefore, according to current estimates EU and the USA will be the primary regions where these two ingredients are used by 2026. One of the factors is that consumers in both areas have are latively high average expend it ureon skincare products. Asia-Pacific and Latin America are poised to be the most rip waste on which to harvest big revenues, with more falling forththan at anyother time. In addition, skin care is likely to remain the largest of all cosmetics applications through 2026. Aside from rising consumer consciousness about what is healthiest for their skin, an ever-increasing market (USD 53 billion between 2016 and 2026) will be needed to meet this need [34].Hence, the anti-aging as agent segment holds the highest compound annual growth rate (CAGR), due to baby boomers. In fact, they use larger quantities of anti-aging cosmetics to nourish and retard wrinkles and fine lines. They even invest a total budgetfor their own skin control the full aging process. Self-tan agents, anti-acne and self- tanning agents, plus various cleaning and soothing

2**.Using Nanlignin and Chitin Nanfibrils to Create Renewable Textiles**

One of the most popular natural fibers utilized to create polymeric fibers and engineered tissuesischitin, which is also these condpolysaccharide and renewable carbon source found in nature after cellulose with an output of one trillion tons year [44]. This linear polymer, which is found in the main form of alpha, is made up of N-acetyl-glucosamine repeating units connected by beta(1,4), resulting in lengthy antiparallel chains that continually curve back on themselves. After that, the folded chain polymers are connected end to end to form nanofibersthat resemble hyaluronic acid instructure. Inactuality, it wasoriginally hinted at [45] that chitin may serve as an evolutionary progenitor of hyaluronan synthesis at the plasma membrane level. Conversely, chitin polymers form connections with section profile an approximation to polygonal, which includes 18–25 molecules within its structure (eachof them composed of a chain diameter of 2 nm and about 300 nm in length), although there also can be more

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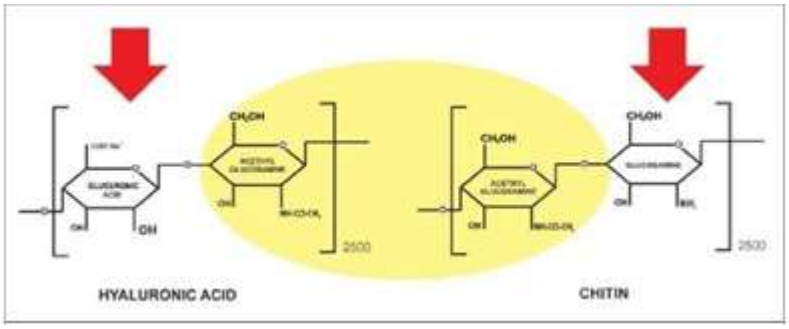

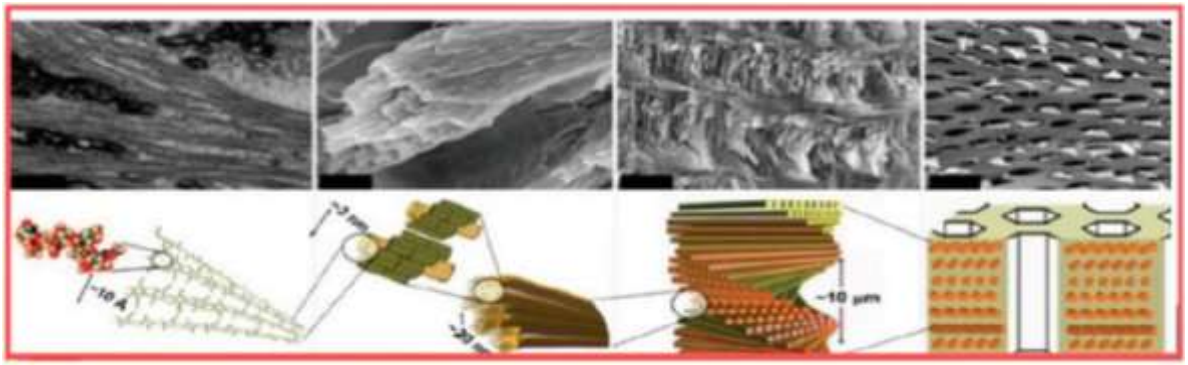

Chitinpolymer organization (courtesy of Svetoslanetal.

Structure organization of chitinin butter flywings.

The deactivated derivative of chitin is called chatoyant. The degree of acetylating (DA) of the two polymers indicates the relative amount of N-acetyl glucosaminein each: DA ismore than 50% for chitin and naturally lower for chatoyant (Figure 5). As you can see, the linear polymers chitin and chatoyant belong to a family. with varying levels of rightness in structure between N-acetyl glucosamine and pure beta-(1,4)-glucosamine. These sets of compounds give different modifying properties depending on the source material or the method chosen for industrial production. In addition, chitin- and chitosan-based nano particles have strong chelaxisticity with atomic metals. They contain sufficiently high anionic lone-pair electrons to form strong asymmetric electrostatic bonds that work like a suction pump. Either polymer, therefore, could find biomedical applications. Actually they are anti hemorrhagic substances that promote the effectiveness of immunization, and also strengthen wound-healing efficiency in the skin as well. In addition to this their degree of biocompatibility and bio-degradability is far superior to that achievable though modifying cellulose synthetically [50–52].

However, when it comes to the toxicity of

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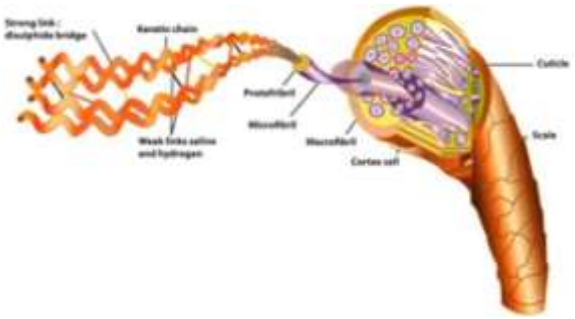
Volume 8, Issue 6 Nov-Dec 2023, pp: 2586-2594 www.ijprajournal.com ISSN: 2249-7781

nano particles [53], like nanotechnology in general, our chitinnanofibrils (CNs) producedona carbon-neutralbasis at zero wasteinour lab using an ecofriendly circular technology with no molecules or matter wasted (data not reported—patent pending), were without toxicityResultsare similar for chitin? Lignin nano particles [13,54-54]. Moreover, it has been shown that chitin is useable as a nutrient by human and environmental enzymes [55–57], which break downthe molecular structure to a linear polysaccharide before passing it through the cell wall or otherwise working on it for its further reduction to oxygen. The other hand, because phenol compounds are contained in the structure of lignin, they have different biological activities. Furthermore, because it is biocompatible with normal human cells, the nonfarm of this is viewed as safe and skin friendly--as well as environmentally friendly

Therefore, chitin nano fibrils (CNs) were selected as a nonwoven tissue to be spawned into medicines. In fact, they were alsoexhibited to own a strong anti-inflammatory action (owing to the nano dimension) and more easily to be metabolized. It should be mentioned that acetylated units in chatoyant oligomers are higher than those in chatoyant [55]. Nevertheless, chitin is a structuralpolymer which serves as an external sandal and skeleton, being present in the cell walls of fungi and the exoskeleton of insects and crustacean shells; it also shares similarities with keratin. But on the other hand, despite its being a natural polymer that is non-synthesized by plant and mammalian, chattiness and chitotrioidases as substrates. Then both bind and actively degrade it. Also, both chitinase-like proteins (e.g., insect defence related protein) [55]. With the additional effect on mammals' macrophage activation, chitin regulates inflammation and tissue re modeling as well. A more proficien the a ling ultimately results. In this instance, plants produce chitinases as a response to fungal invasion and they are members of some of the pathogenesis-related protein families. Likewise, acidic chitinases or chitotriosidases are secreted by innate immune cells from mammalian sources (macrophages and neutrophilic granulocytes). A) protect membranes lung epithelial; B) maintain protection water pool in eyes. [22, 3016]together with their pre It should be noted that the role is underscored It turns out that the synthesis of chitotriosidases inside macrophages, and therefore their chitinolytic active They also play a role in macrophage activation and polarization cascades, as well as inindirectly activating other forms of immunecells [24,56,62]. Also, these enzymes play active roles in important the fungus cell dead shell of snapping shrimp that lives on earth each year. Their ability to turn billion tons of chitin/chitosan around makes them environmentally sustainable companies.



Chitin performs a similar role to keratininmammals.

Trees [65] contain lignin significantly. Lignin amount. It is an inexpensive natural, renewable materialthat can be used effectively. It is a poly-aromatic macromolecule, which has recently been estimated to be produced worldwide in an amount of about 100 million tons per year as a byproduct of cellulose production in pulp and paper processing. France produces nearly half the industrial lignin on earth, with Sweden second; about 50 percent ends up incinerated or going down The polymer is an oxidation product of lignins. This highly branched polyphenolic polymer (Fig. 9) consists of the monolignols p-coumaryl alcohol, coniferyl alcohol and sinapyl alcohol linked to get her by aromatic ethers and aliphatic ether bonds[65,67].is covalently linked to certain polysaccharides; these two components are believed to form lignin– carbohydrate complexes

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(or 'LCC'). Lignin, together with the cellulose forming part of it, provides a fundamental structural and defensive function against the pathogen attacks. In fact, it serves a water-resistant function for the cell wall. It is a key factor
The lignin is branched and has a unique structure, which means thatit's easy to extract lign in nano particles (LGs;short hand for" nanolignins in solution"). Infact,thehydrophobic part (phenylpropanoid units) of this molecule aggregates to form the micelle core in water solutions, while four phenolic and four aliphatic hydroxylgroups combine to create a cross- linked net that forms on the outside to become .These groups are aromatic rings and methoxyls, yet in fact they comprise the hydrophobic parts of lignin, while at a molecular level (at a low enough level), they appear scattered around the OH groups, both aliphaticand phenolic. Therefore, lignin nanoparticles are potentially advantageous as substitutes for the preparation of functional polymer composite materials. These are valued for their UVray shielding and free radical scavenging properties due to the phenolic hydroxyl groupsthat they possess. As such, their preparations- with improved characteristics in fluidity and permeability due to the larger surface area- have also piqued interest in the fields of biomedicine or for all of the functions they play either directly, or in their engaged form, that lend protection against various diseases.

2.Bionanocomposites and Nonwoven Tissues

Natural polysaccharides are used to formulate biopolymeric nanocomposites which can be converted into high-quality, biodegradable nonwoven tissues for beauty face masks. Beauty face masks of this type have become innovative cosmeceuticals when they were replaced by inorganic nano particles. To remind, a nanocomposite is a two-component system containing an organic matrix and another material (a filler or reinforcement) that operates with the former to increase engineering properties. The main emphasis is placed on reinforced polymers. Thermostable chitin nanofibrils are already being used to reinforce biopolymer-based bionanocomposites ([72];the use of such fibers for controlled release of drugs has also been established. Chitin electrospinning, whereby thinner fibers can be formed than with wool, is also possible. With this approach, it iswith a natural polysaccharides gel gelled using CN–LG nanostructured particles.active ingredients (active agents), whichare also fillers. Asecond method wasto add different biopolymers, likewith certain . By carefully blending these two or more kinds of biopolymer into the spinning medium in a particular ratio, it was possible to make non-wovens out ofactivated micro/nanofibers that impart both specific skin

Due to their tiny size, these nanofibers can be sprayed on by a tissue with a special controlled diffusion system, and then easily interact with the surface of the skin or even penetratethrough it. Once inside, the active ingredients in themcould staywithout losing their effectiveness for up to 72 hours, interacting with biomolecules here and there that cover boththeWhat is more, a gel made by complexing chitin nanofibers (Calling it CN) and lignin nanocrystals (LG), which have been processed in this manner, has also been electrospun together with five other materials in any combination (polyethylene oxide 20 kD, PEO; chitosan N

CONCLUSIONS

The prevention of disease and improvement in well-being together with environmental protection have become the focus point for exploring beyond cosmetics. In fact, consumers are demanding products that are going back to nature and care for the planet but which they have acquired through high-tech methods. By contrast, they are diverting their interests to premium products where price is a factor but not a priority. If the approach taken by Hollywood is any guide then it might be that such products can most fully s. Also, whichare incidentally mean for a consumer that he or she canenjoythe full skin-care treatment you would get fromtreatments inthe beautycenter but at afractionof the cost. The reported, described andcosmeceutical tissues could provide all the consumer needs. The onlyadvantage would be that he doesn't have to gooutofhishouse. That is why 47 % of the women in China who use at least one kind facial mask every morning since six months ago or so are nearly all female. Asia Pacific accounts for as wide a share--76 % in fact--of global sheet masks launches last year [80]. Suggesting a growing trend, anti-aging functionality was stated in between 40 and 50 %introduced. However this proportion was only one fourth or less for China. Nevertheless, 47 % of women who used facial masks in 2017 to treat their complexions also considered these a special type of cosmetics which tightened and purified pores, while another 39 % saidtheyused themto diminish fine lines and wrinkles. Besideshave also named

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metalsheet face masks garner rich markets in the next several years. Based upon this principle of contrasts, it appears that cosmeceutical fabric must work to make its selling point to the consumer—beneficialform at a quick -- appealing and enticing. Swatches ofimagination, offering newly developed natural products using new technologies manufactured by textile companies are swatched on racks for the discriminating eye.

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