



TRADITIONAL KNOWLEDGE AND DEVELOPMENT OF COSMETIC SCIENCE:

WORLDVIEW OF A NEW INTEGRATED MODEL OF SUSTAINABILITY

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The word cosmetics derives from the Greek κόσμος (kosmos) meaning “orderly and harmonious system”, related to beauty and balance that the universe presents us. Thus we see cosmetic science as a fundamental part in the interpretation of our environment, our neighbors as ourselves. When we feel good, we are pleased with what we are, we can appreciate the beauty and balance of nature, valuing diversity and variety of colors, smells and textures that inspire us and lead us to a world of endless experiences and feelings we live intensely, which we can share and we expect to maintain for long. Therefore, this desire not to allow cosmetic related experiences are gone, it is a common point with the need to preserve our planet, its resources and biodiversity, which beautify and secure our daily life. Cosmetic Science therefore has a dual purpose, first ensure the health and beauty of their consumers and on the other, preserve and maintain the natural environment as an integral part of a global beauty concept. The integral purpose of cosmetic science, to cover the beauty on two fronts, consumer and environment, generates a challenge, achieve beauty promoting care of the planet, which leads us to think

about finding an ethics of management and use of resources natural.

Currently, in our industry we know a boom in sustainable ingredients, growth of natural products market and a growing awareness by consumers on the importance of sustainability and environmental stewardship but, really is this growth sufficient to meet the purpose cosmetic science has to embellish the world holistically and globally? Can we consider that these efforts in the sustainable development of active and green products contribute substantially to the care of the planet? We do not have an objective way to answer these questions, but we do have information about promising development of this exciting industry, estimated in average 5% growth every year according to Euromonitor, and we can see how it is consolidating, not only in sales but in increasing interaction with consumers.

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This leads us to consider the role of cosmetic science in the care of the planet, which is directly related to the sustainable development of products and ingredients as well as its relationship with society. The current trend and demand are focused on the development of natural active ingredients and highly sophisticated products, based on biotechnology, nanotechnology, genomics and bioinformatics, among other areas, which allow a strong technological advancement. However, the role of cosmetic science is increasingly difficult to perceive in the current globalized world, with a market flooded with new and highly competitive. One of the important aspects that can be concluded from this discussion is that the cosmetics industry could have not yet sufficient impact on the preservation and beautification of our planet, and I think that at this issue there is a great opportunity to strengthen itself and differentiate itself.

One way is to achieve this distinction and impact through the innovative use of traditional knowledge of our ancient peoples including the learning of knowledge that they have of how to relate to biodiversity and environment. For centuries different cultures have developed expertise which has allowed them to survive and reproduce, showing that all forms of knowledge is useful and valid for the success of a society, and this is the product to deeply know the workings of nature, the constitution of objects and knowledge of self.

How can we learn from them?
How can we make a contribution

from traditional knowledge to society of scientific knowledge of cosmetic science? How to sell regional products from traditional knowledge in a global market? These are questions whose answers could give us a light on this issue and allow us an approach that helps the cosmetics industry to increase its market share and preservation of our planet and its inhabitants.

Just as the great achievements of humanity such as electricity, telephone, internet, anti aging treatments among other examples, are open to everyone and most people have them at their fingertips, why we do not look for ways to provide universal access to traditional knowledge, which has been successful for thousands of years and that, is a progress of humanity itself? This approach is a challenge that could be complemented with the finding a fruitful relationship between scientific knowledge and traditional knowledge enabling globalization of the latter.

Traditional knowledge is linked to the culture and experiences of the people and is owned by them; however it is focused on some principles and practical applications which may be desirable to encourage growth and innovation in cosmetic science. Traditional knowledge as part of innovation in the development of concepts and cosmetic ingredients may involve the recovery of traditional practices and the recognition of the "know-how" of indigenous communities, strengthening supply chains and ensuring the resource. We know that sustainability is based on the assurance of the ecosystem for

future generations, with fair trade. But if, for example, hypothetically we found a plant or an ancient active ingredient, that would treat skin cancer and also significantly reverse the damage of aging, restoring skin structure to one of 20 years, could we use it? The answer is probably yes, but can we use it massively? Can we ensure the production of this ingredient worldwide? Or could we ensure availability throughout the year? Can we meet this demand without compromising the sustainability of this plant? Do all people, would have access to this benefit? How we would design a strategy to avoid affecting the habitat of the plant? These are questions we will face in the moment to find it, but if we analyze the situation, we could say we may not be prepared to resolve this issue without affecting the natural balance and therefore the preservation of our planet. The sustainability approach in this case could have a limit that can be exceeded by the demand and expectation of the product. We could say that in these cases, make accessible to all the traditional knowledge and its use is useful because it allows us to find a comprehensive balance with all physical elements of nature and associated knowledge.

We have as an example to apply to cosmetic science, traditional knowledge of the Amazon, a region megadiverse, considered the lungs of the world, comprising eight countries sharing the Amazon basin, in South America. There, traditional indigenous knowledge plays a key role in maintaining biodiversity and livelihoods. The worldview of indigenous peoples

of the Amazon has to do with the way that keeps the balance between society and nature through the rational use of forest resources which, according to them, when this balance is lost, the nature is manifested through scarcity, floods and diseases. Share this indigenous world in a massive way in cosmetic science, focusing on the use of ingredients that are not in any way threaten the balance of the planet, could provide a culture of environmental preservation and global beauty. This worldview must be involved in all the links of the chain, from the start of design and product design to marketing and end use. This shift to a globalized world view of beauty beyond sustainability as an alternative to preservation, with the pillar the use of traditional knowledge, focused on giving universal access to the practices and beliefs of high value, initially performed in a particular region can become the foundation of all practices and procedures in the western cosmetics culture.

How can we make that change within the cosmetics industry? This is a complex question; however we may answer with different approaches and according to the breadth of traditional knowledge.

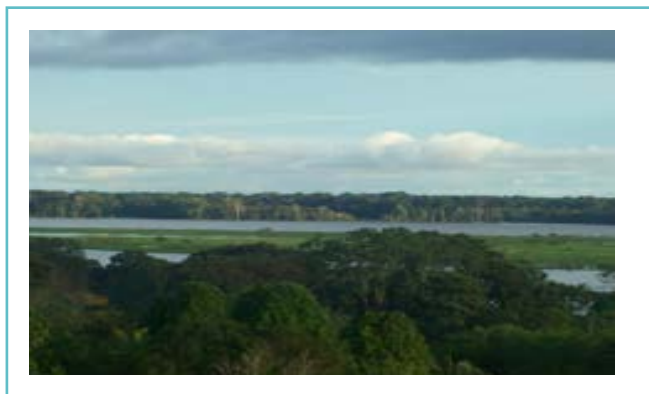


Figure 1. Amazon River. Colombian Amazon. Source: Author.

First of all, in the case of the Amazon, traditional knowledge seeks to use only the necessary resources, in the case of cosmetic science are the ingredients, which are not infinite, but rather they are rotational part inside the equilibrium and of holistic conception managed by indigenous cultures.

From this point of view, with a globalized approach of beauty, for each ingredient produced and used, it must be returned the same amount of resources to the planet and use only what is required. For

example, if 100 plants are needed to produce 100 kg batana oil (*Elaeis oleifera*), then 200 plants must be grown, for that the nature has 100 copies to keep its balance.

This could be an illustrative example of the application of this knowledge within the cosmetic



Fig 2. Inhabitant of Amazon region. SINCHI, 2012

science, but, is it not very expensive?, In theory it costs more, but open to everyone the knowledge, these 200 plants could grow in three different parts of the world and, with a relationship where raw balance, from these three crops, it would gotten the oil required for production, and the protective resource of the planet.

Additionally, within this holistic approach, the other aspect to consider is the functionality. Returning to the same example, suppose that we will need much more batana oil, since it is a successful hair conditioning agent, what can we do? We could increase the oil production from monoculture, which would directly affect the balance of the system. Then, another alternative, from the point of view of Amazonian traditional knowledge, would find another source of equal abundance and availability, which alternates the function of conditioning agent, so that the batana oil can be replaced in the formulation without affecting the performance, and promote the equilibrium and the use of other plants with the same function. In this case, we could switch the active ingredient for another, such as argan oil (*Argania spinosa*). The idea would be provide rotary innovative

and functional products according to the natural production cycle, which reach the consumer, without alteration of the increase in production of ingredients. Once the argan oil production cycle is fulfilled, would alternate it again with another ingredient or equally functional alternatives.

This holistic approach also allows a high level of innovation and research by cosmetic science finding functional ingredients to suit them to the desired requirements. In this way the concepts of traditional knowledge, transferred to the use of cosmetic ingredients positively impact the care and balance that keeps the planet.

Another advance that can be mentioned and applied within the cosmetics industry from the success of Amazonian traditional knowledge in producing ingredients is the concept of "chagras". Chagras system is a type of polyculture around which revolve other productive activities of the indigenous population. These systems do not take continuous places, but are growing areas scattered in the bush, framed within a scheme of temporary use, allowing recovery of the forest. The chagras are the cornerstone of community life and basically are areas of maximum 2 acres within the forest, which last between 2-15 years, where are grown from 32 - 60 different selected species of plants that are considered necessary for livelihood. These species have different production time and are classified according to harvest time and according to the hierarchy of need.

The chagra care is performed according to the

knowledge previously acquired and focused on continuous improvement of its products. Experts consider the chagras as the most appropriate management of the Amazon ecosystem, due to its domestication at all stages and in all its components, which allows the maintenance of balance in forest regeneration, thanks to the accumulated knowledge of thousands of years of experimentation. An interesting aspect of this production system is, for example, the cultivation of two groups of plants, the transient (cassava, plantain, snuff, vegetables etc.), which have a short life cycle, and perennial (fruit), which can reproduce natural transition events of the forest, where once abandoned the cultivation area, these plants remain as a natural part of the forest, and at the same time are a productive source.

According to a study by the SINCHI Institute (Amazon Institute of Scientific Research, Colombia), 200 species are used and fully managed by indigenous communities in their daily lives. These species become important for its nutritional, medicinal, cosmetic and mystical properties among others. This production concept is also based on symbolic conceptions, sense of belonging and respect for Mother Nature. Cosmetic Science could adapt this innovative technology in the production and handling of ingredients, perhaps selecting functional active ingredients and excipients, in the same transient growing area, where several species coexist and have similar adaptation, offering several products that can contribute to model of rotation and use of ingredients.

If we learn to use this model, not only in the Amazon, but to adapt it to various regions of the



Figure 3. Young Chagra in production. Source Sinchi Insitute, 2011

world, we could ensure, on the one hand, greater diversity and innovation of ingredients, and on the other hand, transitional areas of product development, which will be returned to the environment once they have fulfilled their production cycle and are abandoned. This concept seems very interesting and if we could make it accessible to all, this would have a much greater impact, not only in the beauty of our planet, but also contribute positively to the development of food sources. In the Table 1 is presented a model of applying the concept of *chagras* in the development of ingredients for cosmetic industry.

Implement successful models of traditional knowledge in a global and harmonic context, will allow the cosmetic science to increase and improve the development of products with a positive impact on the planet and its inhabitants. This new worldview must come not only to a small niche market for sustainable products, but also generalize to the entire market, ensuring that not only cosmetically active sources are derived from the principles of traditional knowledge, but all the ingredients, including excipients, preservatives, emollients and other constituents.

Why not think of the "harmonic greening" of cosmetic science, ie slowly with the help of traditional knowledge and the advancement of scientific knowledge, to reach a total of ingredients that can generate significant volume and impact on the community and the planet. This need is increased every day in all productive sectors, due to the problems caused by climate change, food shortages, and awareness of global warming, which requires directly the responsibility we all have to safeguard our home. The worldview based on to make the ancestral knowledge and its synergistic use, be accessible to all, will allow a change of focus in the industry and a greater impact of cosmetic science on the conservation of the planet.

Moreover, the majority of the Western world conception is that each person can squeeze the most the products of nature, regardless of their agony and suffering. However, this has been changing because society has felt the cry of nature, or probably has seen diminished or endangered generating sources of the economy, and this has made traditional knowledge takes more strength and interest, as a solution these problems. Therefore, the relevance which traditional knowledge will take in the future, will be decisive for the competitiveness of industries, generating new economic alternatives, and will be the new differential from the current sustainability.

Knowledge has been forming in daily life and is found in every one of the people, for that reason, include traditional knowledge to our work actively, will enhance our capabilities and provide balance and beauty to ourselves and our environment. The cosmetic industry can integrate some advances, as we have seen, within a holistic worldview based on ancestral knowledge gained over thousands of years.

This knowledge that, as a practical example is in the Amazon, is found in all regions of the world (Asia, Africa, America, Europe, Oceania), and it is a challenge to place cosmetic science as a pioneer in promoting the beauty and care of our planet.

The IFSCC, as global scientific organization, is a benchmark that allows innovation and technological development in cosmetic science, and with this new view of the world, it could contribute to the dissemination and harmonious integration between Western scientific knowledge and the globalization of traditional knowledge, providing comfort, security and integral beauty to our lives and our planet.

Table 1. Proposed model of *Chagras* concept applied to the development of cosmetics ingredients.

Stages in the process of <i>Chagras</i>	Activities that can be applied to the development of ingredients
Land Selection	Research. Prioritization of ingredients with common soil and climatic conditions. (30 - 60 cosmetic and food species)
Weeding.	Preparing the ground.
Burning or purification	Soil nutrition. Ash use as a source of minerals.
Cooling (Belief)	Interaction with the community.
Seedtime	Selecting seeds. Seedtime Genetic improvement.
Maintenance	Evaluation of new species (new <i>chagras</i>) Research on active ingredients.
Production and post harvest	Collection. Transient plants (6 months -2 years) Perennials plants (2 - 15 years) Conditioning of raw material.
Abandonment	Forest recovery itself (6 -15 years)
New start	