



# Phytocosmetics – Where Nature Meets Well-Being

Iguatemi Melo Costa\*

Natura Inovação e Tecnologia de Produtos Ltda, Cajamar, Brazil  
Email: iguatemicosta@natura.net

Received 1 September 2015, Accepted 15 September 2015, ePublished 19 September 2015

Natural products have been for ages the first, and often the only, source option for most of human necessities: from food to medicinal preparation, passing through materials and even for beauty purposes. It is interesting to mention that besides the advances in many fields of science and technology, natural products are still crucial for any field of economy.<sup>1-3</sup>

Taking into account the modern discovery of drugs, natural products were, for a long time, the first choice for searching new chemical structures, and this can be explained, along with other factors, by the diversity of solutions that nature created in millions of years of evolution. Humanity itself is fruit of the same process, even though sometimes we forget this. Natural products are, ultimately, biochemical metabolites. They also have an additional advantage of high stereochemistry definition (naturally selected by the evolutionary process) and normally exhibit a great range of possible pharmacophores. In a simple analysis, a high degree of activity and bioavailability are expected from these properties, and, therefore, their possibility of interaction with receptor sites and transporter systems are potentially higher than synthetic options, at least those not related to natural structures, as some studies have indicated.<sup>4-6</sup> Although the focus of the pharmaceutical industry for botanicals and other natural products has been reduced in the last years,<sup>3,4,7</sup> natural molecules still are the main source of potential drugs and many natural products still figure in clinical trials or at least inspire new drug candidates, especially for anticancer and antimicrobial research.<sup>3,4</sup> It may be expected that some important new approaches and technological improvements, like recent advances in NMR and mass spectrometry, “omics” and high-throughput screening (HTS), will bring new stimulus in this field.

Taking advantage of all technological advances the phytocosmetic sciences are improving enormously, with the advantage of having a quicker path of development if compared to that of drug development, even considering the rigor need to launch safe products. Evolution in fields like ethnobotany, pharmacognosy, phytochemistry, analytical chemistry, efficacy and toxicology and even new available techniques and technologies on prospection, identification of plants, extraction and scale up processes, as well

as new formulation possibilities, just to mention a few, guarantee a propitious moment for phytocosmetics from a technical and scientific point of view.<sup>2,3,8,9</sup>

Another component not completely explored is the study conducted from traditional knowledge. Despite any controversy, many of the ancient pharmacopoeias were written based on the traditional knowledge about the use and known properties of plants all around the world. Some well-known examples are Chinese, Egyptian and Indian, with some products still used worldwide. Furthermore, this does not take in account many other cultures that do not have a written tradition but live for centuries very close to nature, and have learned, over the years, its secrets and how to extract from it what is essential to living. It seems wise to learn from these cultures some of the plant activities as a way to accelerate science discovery, and sharing the benefits of this discovery seems to be a fair and intelligent way to create value for nature resources and for those who live within.<sup>9-14</sup> Concerning this, it is important to mention the Convention on Biological Diversity (CBD) and Nagoya Protocol, that bring at the same time more complexity to research and development of naturals and a salutary discussion of the importance of traditional knowledge in the discovery of new ingredients and environment conservation. The United Nations Convention on Biological Diversity (CBD) is related to access to, and the use of, biodiversity across national boundaries, while Nagoya Protocol is concerned with access and benefit-sharing with respect to natural products and traditional knowledge. Even though it has not been ratified for all the countries that first signed, it can be considered a guide to working with biodiversity and use of traditional knowledge.<sup>15-19</sup>

Taking into account the modern concept of health, which considers well-being and not merely the absence of disease, it is natural that classical medicine is linked to food and cosmetic sciences (among others) and in this regard, natural based- and phytocosmetics have an important role in modern society. In this context, natural based cosmetics, fragrances, toiletries and personal care products have increasingly attracted interest by the market. This was true in some mature markets like Europe, Asia and the United States and currently there is a strong innovation trend in



the world market. Biodiversity has primary importance in this strategy and is connected to a greater awareness of people concerning sustainable concepts, as well as the fact that natural ingredients can be good for health. Available data suggests that global market for 'organic' personal care products should grow from approximately \$8 billion in 2013 to approximately \$16 billion by 2020, mainly based in the results of Europe, North America and the Asia Pacific regions and driven by increasing of consumer awareness. The figures are even more significant when consider the expanded concept of 'natural based cosmetics'. Data from global management consulting and market research firm Kline, states that in 2014, the global market for natural personal care products is estimated at more than \$32 billion, showing a constant growing which outpaces the overall beauty market.<sup>20-24</sup> While North America and Europe are currently the biggest markets, Latin America (highlighting Brazil) and Asia are the fastest growing regions. Considering the increasing importance of Latin America in the regular cosmetic market, increased purchasing power, their recognized role as an important supplier of natural raw materials, their great biodiversity and some specific policies related to natural products, it is expected an increasingly significant participation of these countries in this field.<sup>25-28</sup>

According to a study conducted by UEBT (Union for Ethical BioTrade), between 2009 and 2014, 38 000 consumers in 13 countries were surveyed on biodiversity awareness, expectations towards ethical sourcing and how this affects purchasing decisions and it reveals that 67% of consumers around the world have heard about biodiversity in the last five years and their knowledge on the topic, their definitions and related notions has grown dramatically. This research also points out that natural or cosmetics containing natural ingredients are the most sought after, especially in China, Brazil, Germany and France. This same research shows a growing interest in biodiversity in companies in the cosmetic and beauty industries in recent years. Considering the top 20 companies in this segment, 80% report at least the use of biodiversity in their portfolio. Globally, the number of new products for skin care containing natural ingredients and botanicals as the main components has grown from approximately 900 in 2005 to 6000+ in 2012 (last data analyzed by the author), establishing the second greatest benefit exploited in the analyzed markets, following only 'moisturizing'.<sup>29</sup>

All this market potential reveals society's interest and demands specialized debate and serious study. In this matter it is of great importance to dedicate special attention to the phytocosmetic sciences, since its multidisciplinary approach can encompass all the complexity and beauty of this subject that can otherwise be lost when it is discussed along with other subjects. That is the purpose of *International Journal of Phytocosmetic and Natural Ingredients*: to gather the best results in this field to promote research, education, training, and application of those technologies and give all of this back to society.

It seems that we are in a perfect moment for phytocos-

metic science development, where technology development meets consumer awareness. Nature has much more to teach us. Let us learn and move the science and society ahead.

## References

1. Baker DD, Chu M, Oza U, Rajgarhia V. The value of natural products to future pharmaceutical discovery. *Nat Prod Rep.* 2007;24:1225-1244. doi:10.1039/b602241n
2. Staniek A, Bouwmeester H, Fraser PD, et al. Natural products – learning chemistry from plants. *Biotech J.* 2014;9(3):326-336. doi:10.1002/biot.201300059
3. Dias DA, Urban S, Roessner U. A historical overview of natural products in drug discovery. *Metabolites.* 2012;2:303-333. doi:10.3390/metabo2020303
4. Harvey AL, Edrada-Ebel R, Quinn RJ. The re-emergence of natural products for drug discovery in the genomics era. *Nat Rev Drug Discovery.* 2015;14:111-129. doi:10.1038/nrd4510
5. Drewry DH, Macarron R. Enhancements of Screening collections to address areas unmet medical need: an industry perspective. *Curr Opin Chem Biol.* 2010;14:289-298. doi:10.1016/j.cbpa.2010.03.024
6. Hert J, Iwin JJ, Laggner C, Keiser MJ, Shoichet BK. Quantifying biogenic bias in screening libraries. *Nature Chem Biol.* 2009;5:479-483. doi:10.1038/nchembio.180
7. Ojima I. Modern natural products chemistry and drug discovery. *J Med Chem.* 2008;51:2587-2588.
8. Cáceres A, Cruz SM. Contributions of natural ingredients from the Mesoamerican biodiversity for the phytocosmetic industry. *International Journal of Phytocosmetics and Natural Ingredients.* 2015;2:2. doi:10.1038/nchembio.180
9. Fred-Jaiyesimi A, Ajibesin KK, Tolulope O, Gbemisola O. Ethnobotanical studies of folklore phytocosmetics of South West Nigeria. *Pharm Biol.* 2015;53(3):313-318. doi:10.3109/13880209.2014.918155
10. Corleto LM. Pharmacopoeia in ancient Egypt. *Medicina nei Secoli.* 1993;5(1):1-18.
11. HaoYF; Jiang JG. Origin and Evolution of China Pharmacopoeia and Its Implication for Traditional Medicines. *Mini Rev Med Chem.* 2015;15(7):595-603.
12. He S. Chinese herbal dose in ancient and modern times: a comparative study. *J Trad Chin Med.* 2013;33(2):268-271.
13. Leonti M. The future is written: Impact of scripts on the cognition, selection, knowledge and transmission of medicinal plant use and its implications for ethnobotany and ethnopharmacology. *J Ethnopharmacol.* 2011;134(3):542-555. doi:10.1016/j.jep.2011.01.017
14. Pieroni A, Privitera S. Ethnobotany and its links to medical sciences and public health: quo vadis? *Zeitschrift Phytotherapie.* 2014;35:58-62.
15. Cragg GM, Katz F, Newman DJ, Rosenthal J. The impact of the United Nations Convention on

- Biological Diversity on natural products research. *Nat Prod Rep*. 2012;29:1407-1423. doi:10.1039/c2np20091k
16. Bavikatte KS, Bennett T. Community stewardship: the foundation of biocultural rights. *J Human Rights Environ*. 2015;6(1):7-29. doi:10.4337/jhre.2015.01.01
  17. Text of CBD. <http://www.cbd.int/doc/legal/cbd-en.pdf>. Accessed July 2015.
  18. Global Biodiversity Outlook 4 – A mid-term assessment of progress towards the implementation of the Strategic Plan for Biodiversity 2011-2020. <http://www.cbd.int/GB0>. Accessed July 2015.
  19. Davis K. *A CBD Manual for Botanic Gardens*. Richmond, UK: Botanic Gardens Conservation International; 2008.
  20. Capturing the Green Trend: A Review of the Global Natural Personal Care Market. Kline Group Blog. 2015;5. <http://www.klinegroup.com/blogs/index.php/2015/02/05/free-webinar-capturing-the-green-trend-a-review-of-the-global-natural-personal-care-market/>. Accessed July 2015.
  21. Organic Personal Care Market Analysis By Products (Skin Care, Hair Care, Oral Care, Cosmetics) and Segment Forecasts to 2020. Grand View Research – Marketing Research & Consulting Report. 2014. <http://www.grandviewresearch.com/industry-analysis/organic-personal-care-market/segmentation>. Accessed July 2015.
  22. Pitman S. Organic personal care market likely to post double-digit annual growth to 2020. *Cosmetics Design*. <http://www.cosmeticsdesign.com/Market-Trends/Organic-personal-care-market-likely-to-post-double-digit-annual-growth-to-2020>. Accessed July 2015. Published 2014.
  23. Kline Group. Natural Personal Care - Regional Market Analysis and Competitive Brand Assessment. Natural Beauty Summit America; 2012.
  24. Technical Insights: Natural & Organic Cosmetics Brand Assessment. *Organic Monitor*; 2011.
  25. Moya M, San Miguel M. *Cosméticos naturales y orgánicos: Una apuesta para Latino América?* Sociedad Chilena de Químicos Cosméticos; 2013.
  26. ABIHPEC – Associação Brasileira da Indústria de Higiene Pessoal, Perfumaria e Cosméticos – Panorama do Setor 2015. Available online (Portuguese): <https://www.abihpec.org.br/category/publicacoes/panorama-do-setor/>. Accessed July 2015.
  27. Market and trends, Sales of natural cosmetics boosted by consumer awareness and innovation. *Premium Beauty News*. 2014. <http://www.premiumbeautynews.com/en/sales-of-natural-cosmetics-boosted,7338>. Accessed July 2015.
  28. San Miguel M. Participando en el mercado de cosméticos naturales y orgánicos. *Cosmetics Online Latinoamérica*. 2014. [http://www.cosmeticsonline.la/la\\_le\\_coluna\\_site.php?id=85](http://www.cosmeticsonline.la/la_le_coluna_site.php?id=85). Accessed July 2015.
  29. Biodiversity Barometer. Union for Ethical BioTrade (UEBT). <http://ethicalbiotrade.org/biodiversity-barometer/>. Accessed June 2015. Published 2014.