

Research Article

Consumer-Driven Cosmetics and Beauty Care Innovations in Saudi Arabia

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Abstract

Increasing Saudi government political commitment and investment in building new and effective cosmetics and beauty care industries partnership and cooperation platforms, policies and regulatory compliance in meeting public needs is urgently needed in aligning and achieving Saudi Vision 2030. The paper evaluates cosmetics and beauty care products and services access and uptake in optimizing effective and sustainable approaches and strategies in boosting Saudi economic diversity and new Saudi Vision 2030 opportunities to all citizens. Consumer-driven investment value of cosmetics and beauty care market should be prioritized in Saudi economic diversification and growth innovations. Cosmetics diversity benefits development require investing into marketing awareness and cutting-edge Research and Development (R&D) resource, marketing, sustainable business growth and new technology capabilities critical for (1) enhancing partnership and collaboration in cosmetics and beauty resource innovations (2) responding to a growing demand for holistic beauty based around cosmetic benefits, sensorial features and lifestyle attributes (3) Scaling up Hajj and Umrahpilgrims, tourists, hospitality and public consumers cosmetics digital marketing, engagement and awareness campaigns and capacity development strategies (4) shared benefits of cosmetics and beauty care partnership investment, marketing access and uptake and (5) promoting consumer-driven health and beauty care cosmetics investment: collective gains of capacity development and compliance to safety and best practices. These cosmetics innovative approaches and strategies are crucial cosmetics pilgrims, visitors and public consumer's increasing guaranteeing consumers' confidence and trust. Moreover to boost consumers positive knowledge, attitude and behaviour up take awareness and education outreach through beauty fashion, hotels and restaurant, celebrity, entertainment and lifestyle public bloggers in rising cosmetics landscape contributions and workforce employment in flourishing economy prosperity in KSA.

Keywords: Beauty care; Compliance; Cosmetics; Economy; Marine; Natural; Plants; Practices; Regulation; Safety; Saudi Arabia

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Introduction

The significance of cosmetics and beauty care biotechnology industries in the Kingdom economy is being increasingly becoming an attractive shopping destination, with a population of 28.8 million, large annual Muslim pilgrims and tourism that is expected to receive an overall of 88 million visitors by 2020 in achieving the Saudi Vision 2030. The growing Saudi cosmetics market is one of the largest in the Middle East, estimated at over SR60 (USD \$160,000) billion annually, with a forecast of 11 percent annual growth rate for the sector [1]. It is projected that by 2020, average annual Gross Domestic Product (GDP) growth rate per capita is forecast to reach SR112,500 (USD \$32,840) billion (4.4 percent), up from SR71,250 (USD \$19,899) in 2010. Currently, KSA is ranked as the 26th economy out of 189 in the ease of doing consumer-driven market and businesses. With over 50,000 registered cosmetics providers, current annual estimate of cosmetics stands between SR 1,400-14,256 (USD \$375 - 3,900) compared to women in the West, the Arab world and even in the Gulf [1,2].

Cosmetics and beauty care are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits. Increasing of beauty and health cosmetics businesses is recognized for its potential market and share growth [3]. The Kingdom's large and buoyant economy has been a key growth market and investment focus for cosmetic companies brands and retailers shops (L'Oreal, Bath & Body Works, Boots, Marks & Spencer, Clara, Halal cosmetics, Inika, One Pure, LLC, FX, etc.) [3,4]. It is worth noting that cosmetics and beauty care can also be defined as care/make-up substance used to enhance the body or individual appearance, beauty and the beautiful (esthetics) coupled with health related skin, teeth and body care or surgery benefits [2,3,5]. The rising cosmetics marketing awareness, consumer willingness and access to high quality Saudihalal and Oud cosmetics and international brands products and services justified their rationale choices [6]. Additionally, religious preference for Halal or Arabia Oud products which is predominantly a Muslim populated country is another factor driving demand for Halal cosmetics by local and foreign millions of pilgrims annually [6,7].

Phytomedicine and marine resources can provide primary beauty and therapy-oriented in cosmetics and beauty care efficacy, safety, quality and mechanisms of action innovative studies. Fostering comprehensive health and beauty products regulatory compliance and capacity development to beauty, fashion and lifestyle bloggers in existing and new products pre-market approval, ingredient control and labeling warnings and marketing strategies [2,3,6-8].

Developing effective and sustainable phytomedicine and marine cosmetics and beauty care partnership, networks and platforms in improving cosmetics and beauty care investments and collaboration research and development and harmonizing standards, while leveraging on existing adequate and efficient cosmetics and cosmetics regulatory processes are vital in accelerating Saudization and increasing empowerment diversity, equitable social and economic benefits. Hence, productive market for strategic partnerships foreigner firms, customs, Jeddah Chamber of Commerce and Industry, SFDA, municipality, Governate and government investment in fostering local cosmetics

company's establishment, infrastructure and reforms is imperative to enhance cosmetic market value businesses and new employment choices [9]. This has led to an enhanced awareness in cosmetics products, salons and beauty services. Besides perfume, hair-care products, predicted at a 26 percent increase in skin care products are showing an increasing importance in Saudi Arabia and other Gulf states. Moreover, cosmetic surgery sector has grown tenfold over the past five years. Aside from internet or online shopping and tourist hospitality, the major cities in Riyadh, Jeddah and Dammam, have become virtual shopping havens with a large number of residents living in rural areas and tourists spending their weekends and vacations searching for the latest designer cosmetics and premium fragrances [1,6,7].

Cosmetic procedures such as liposuction, rhinoplasty, botox injections and fillers and laser hair removal have become common. It is estimated that cosmetic surgery clinics will increase 10 times over the next five years enhanced Saudi important hub when taking into consideration the large annual 6-8 million Muslim pilgrims and visitors available in KSA. The Saudi Food and Drug Authority represented by the Executive Department of Cosmetic Products Safety requires all cosmetic products manufacturers and importers to register (notify) their products through e-Cosma (the electronic system of cosmetic notification) (<https://ecosma.sfd.gov.sa/home.aspx>) according to cosmetic notification legislation implementation to fulfill clearance and post marketing requirements and regulations [8-10].

The paper evaluates cosmetics and beauty care products and services access and uptake in optimizing effective and sustainable approaches and strategies in boosting Saudi economic diversity and new Saudi Vision 2030 opportunities to all citizens.

Enhancing Partnership and Collaboration in Cosmetics Resources

Increasing collaboration and investment portfolio in different locations nationwide will continue to boost Saudization agenda including more women employment as important users or consumers of cosmetics, medical device, drugs and herbal or health products (borderline products) demand driven growth and economy growth in KSA. A comprehensive partnership, collaboration and communication amongst the various ministries and agencies including Ministry of Commerce and Industry (MOCI), Ministry of Information (MOI), Customs Department, Saudi Arabian Standards Organization (SASO), Saudi Food & Drug Authority (SFDA), Communications and Information Technology Commission (CITC) is paramount for unified and coordinated platforms and activities in clearance approval [9-11]. Monitoring cosmetics products public health safety and security is a continuous process and its importance in guaranteeing consumers' confidence, trust and utilization underscore the value added of adverse effects, short and long-term consequences on health. Hence, national cosmetics pharmacovigilance through SFDA and SASO play very active roles in maintaining and safeguarding that all local and international cosmetics and pharmaceutical products nationwide comply to ascribed requirements, rules and regulation at all times and at all levels [9-11]. Furthermore SFDA requirements approval or satisfaction states clearly that all borderline products should be free from lard substances, homogenous, stable, clean and attractive appearance not fermented or suitable for consumption. It must neither cause damage to health nor change during storage at normal conditions and shall not contain graphics or images or phrases that are inconsistent with Islamic traditions and prevailing social values. Streamlining SFDA

stepwise assessment processes of cosmetics requirements is needed including fast tracking clearance company reference, product(s), labeling requirements as stated in the GSO 1943/2009, brochure and validation reports/papers to audits of product manufacturing processes, accreditations of Quality Management System ISO 9001, Good Manufacturing Practice (GMP) certification and Good Laboratory Practice (GLP) ISO 17025, physical inspection of local and imported products import through Saudi Arabia Customs and SFDA. Due process in sampling and testing, issuance of the Certificate of Conformity and documentary verification must be performed at SFDA accredited laboratories and validated for clearance approval. These standard cosmetic requirements can be found and filled directly on SFDA online, GCC Standardization Organization website [9,11].

Measuring and monitoring is indispensable and mandatory for, efficacy, quality and safety of cosmetics products, devices, active principle(s) and ingredients maximum concentration ready for use, conditions of use and warning, guarantee of raw materials, competent application (use of original or standard reference materials, formulation of excipient components and purities required measures [9,10]. Likewise cosmetic threshold of heavy metals (arsenic, lead, mercury, cadmium, Antimony), heat and radiation, safety of natural or chemical preservative sensitivity optimization (optimal preservative system, linkage to product type and criteria threshold limit to prevent or retard microbial growth.

New cosmetics market opportunities and enhancements including Saudization of cosmetics and beauty care safety and firms buy in, scale brands advertising and marketing, awareness and monitoring is needed of medications and pharmaceuticals (prescription and nonprescription), laboratory chemicals and solutions, reagents and diagnostics, dietary supplements including vitamins and cosmetics products [8,9]. The marked cultural, attitudes socially acceptable consumers health, beauty and aesthetic paradigm shifts has become increasingly sophisticated and demanding through the rising in number of people having access to the internet and social media platforms 60.5 people out of 100 in 2013, up from 41 in 2010 [12]. Promotion and marketing cosmetic products to community must not pose any known health risk or cause damage to human health when applied under normal or reasonably foreseeable conditions of use conform to the provisions. Safety and effective acceptance cosmetics specifications and conformity assessment for consumers' acceptance and uptake require that each consignment of cosmetic products shall be accompanied with a certificate stating its compliance with SFDA approval requirements [9,10]. These standard cosmetics requirements can be found and filled directly on SFDA online, GCC Standardization Organization website [9,11,13].

There is an urgent need to promoting robust and sustainable leadership and investment in cosmetics and beauty care enabling regulations and policies, laws and penalties adherence and quality satisfaction in the kingdom. Importantly, improving community social mobilization, awareness and education, sales and marketing of cosmetics service and products quality delivery and outcomes. Scaling up local and international digital marketing and chain supply procurement on potential or documented advantages of Saudi cosmetics (e.g., Oud and perfumes) and herbal products public safety and security is crucial across social networking websites and media (social media (Twitter, Facebook and other Arabic social platforms), TV, Radio, Press, informal gatherings, faith- and schools-based educational programs and training activities nationwide.

Scaling up Pilgrims, Tourists and Public Cosmetics Marketing and Awareness Campaigns and Capacity Development

Cosmetics market fast-moving changes in digital technology and marketing continue to witness resilient development and growth due to high level commitment and government investment including public-private sector beauty markets and marketing trends in line Saudi Vision 2030 [3,4,6]. Beauty and personal care are also contributing to resilient Saudi economic growth over time. There is an increasing need to develop and build reliable cosmetology and esthetics know-how and skills to take up these new opportunities and entrepreneurships in the field in revamping employment and social interconnections. Scaling up cosmetics and biotechnology investment and opportunities is core to provide courses and programs in areas such as cosmetics marketing and advertising, esthetics/cosmetics analyst and stylist specialist, brands management, regulatory bodies' management, cosmetherapist and beauty care stylists, hospitality products commercialization and cosmetovigilance. But also, in developing and implementing formal postgraduate degree and short diploma training programs initiatives in accredited institutions and training centers [7,10]. Cosmetics and beauty specialists' remains main distribution channel including reputable quality of natural Oud and Bokhoor products [3,5,6]. This is expected to be, which has allowed its brand share in premium fragrances to continue to register increased growth in 2014 [8,9,11]. Fostering favorable market dynamics require training professionals in cosmetics and beauty care, sale specialists, representatives and retailers' specialist to brand designers new ventures.

More efforts in promoting local cosmetics Halal and Oud brands products and market share should with the introduction of men, women and unisex fragrances and premium personal care products and evolving consumers behavior from internet or online shopping and marketing in strengthening robust and vibrant cosmetics market performance and growth, the major cities in Riyadh, Jeddah and Dammam overtime [1,3,6,8]. Cosmetics regulatory legislation and framework alignment will continue to play a significant role in cosmetics companies and biotechnology establishment and comparable local high quality cosmetics production and market brand growth, cosmetology research and development innovations in accordance to SFDA and SASO regulations. Minimizing or removal of trade and clearance approval barriers and challenges, openness to international competition and most importantly safety and efficacy of the marketed products is crucial. The present contribution gives insights in opportunities and challenges in fostering comprehensive regulatory compliance and capacity development in existing and new products premarket approval, ingredient control and labeling warnings and marketing. Likewise strengthening continuous cosmetovigilance is vital in flourishing new cosmetics market investment, employment opportunities-driven demand, cosmetics sector in saudization and emerging economy growth in the Kingdom.

Benefits of Cosmetics and Beauty Care Marketing and Partnership Investment

Consumer-driven contributing to resilient digital marketing and market strategies in Saudi economic growth required strengthening supportive regulatory legislation and framework alignment will continue to play a significant role in cosmetics and beauty care companies and biotechnology establishment in line with Saudi Vision 2030.

Increasing cosmetics and beauty care needs will also require developing robust local, regional and millions of annual pilgrims cosmetics and beauty care Research and Development (R&D) agenda to build reliable and trustworthy cosmetology and esthetics know-how and skills to take up these new opportunities and entrepreneurships in revamping employment and social cohesion [2,3,14]. Developing short training courses or postgraduate degree and diploma in sub fields of cosmetology and pharmaceuticals, pharmacognosy, cosmetics marketing and advertising, cosmetics economic and management as well laws and regulation courses and programs should be initiated in accredited institutions and centers in scaling up capacity development with the expanding trends in the number of domestic and global cosmetics, fragrances and personal care brands [15,16]. The popularity of all three top distribution channels is mainly due to consumers' preference to be able to get product information on the spot from knowledgeable staff and specialists [16,17]. Cosmetic products requirements in Saudi Arabia.

Safety and effective acceptance of cosmetics specifications and conformity assessment is needed for companies' compliance, consumers' safety, acceptance and uptake requirements approval by SFDA. Promotion and marketing cosmetics products to community must not pose any known health risk or provisions [9,14]. SFDA stepwise assessment processes of cosmetics requirements include, company reference, product(s), labeling requirements stated in the GSO 1943/2009, brochure and validation reports/papers to audits of product manufacturing processes, Quality Management System documents ISO 9001, GMP certification and GLP ISO 17025, physical inspection of local and imported products import through Saudi Arabia Customs, sampling and testing, issuance of the Certificate of Conformity and documentary verification must be performed at SFDA accredited laboratories and validated for clearance approval. These standard cosmetics requirements can be found and filled directly on SDFA online, GCC Standardization Organization website [9,11,16].

Measuring and monitoring is indispensable and mandatory for, efficacy, quality and safety of cosmetics products, devices, active principle(s) and ingredients maximum concentration ready for use, conditions of use and warning, guarantee of raw materials, competent application (use of original or standard reference materials, formulation of excipient components and purities required measures [9,10]. Likewise cosmetic threshold of heavy metals (arsenic, lead, mercury, cadmium, Antimony), heat and radiation, safety of natural or chemical preservative sensitivity optimization (optimal preservative system, linkage to product type and criteria threshold limit to prevent or retard microbial growth. Yet, preservative use is required to prevent rancidity, appearance/odor changes to the product caused by microorganisms, protect activity/functionality of the product and protects from inadvertent contamination by consumer during use or production [9]. The functionality (efficacy and safety) of most cosmetics classes is determined by the pH, conditions of manufacturing and order of addition that prevents microbial growth in a product, stable, non-irritant and non-toxic [9,12,15]. However, it should be noted that factors affecting cosmetics storage and spoilage include raw materials quality, chemical-physical formulation, packaging, consumer way of use and storage conditions, whereas the action might be influenced by concentration, solubility relationship, pH and surfactants composition. As cosmetics companies and products composition claims varied depending on use(s) including cleaning, perfuming, beauty or esthetic surgery [9,10,14].

Fostering favorable market dynamics retains leading position in premium fragrances continues to be the leading cosmetics stakeholders in overall beauty and personal care. For example, the Halal cosmetics market in Saudi Arabia projected compound annual growth rate over 15% during 2015-2020, due to growing consumers' accessibility, increasing online awareness and willingness benefits of using and paying more for high quality and marketing local brand halal cosmetics [1,14-19]. Recognizing the value of Saudi Oud perfumes, Bokhoor (incense) and Premium Fragrance competitor, Abdul Samad Al Qurashi Co., is amongst the top ten multinational players in 2014, recent progress offers a wide range of well-advertised and well-distributed local and regional compared to international brands. Other cosmetics and beauty care players focus on mass beauty and personal care products such as Binzagr Lever (Unilever Arabia) and Procter & Gamble Arabia coupled with the increasing preference for halal cosmetics is leading to a change in business strategy of the local as well as international companies operating in the market [14,18-20]. Certified Halal cosmetics companies are also witnessing a new drift towards increasing demand and focusing on accommodating the growing halal cosmetics products assortments/innovations preference across the Kingdom. Fostering comprehensive regulatory compliance and capacity development in existing and new products premarket approval, ingredient control and labeling warnings and marketing, with a special focus on constant cosmetovigilance nationwide in flourishing new cosmetics and beauty care market investment, employment opportunities-driven demand and economy growth in KSA [9,10,14,18,21]. Raising local Oud brands share should be promoted with the introduction of men, women and unisex fragrances and premium personal care products and evolving consumers behavior from internet or online shopping, the major cities in Riyadh, Jeddah and Dammam in strengthening robust and vibrant cosmetics market performance and growth in attaining Saudi vision 2030.

Cosmetics and beauty care firms and sale representatives, retailers and brand designers new ventures establishment in KSA will enhance a large portion of the population and pilgrims becoming more cultured and stylish, thus increasing demand for all types of beauty and personal care products [14,22-24]. Robust cosmetics market growth continues to boost overall performance continued to witness with premium mass beauty and personal care witnessing good value performance in rising consumer awareness concerning the benefits of better hygiene and anti-bacterial effective and safe products mainly through advertising in print media, in-store and online or ecommerce promotion through social media networks and media channels [25-28], buoyant beauty markets and marketing towards Saudi economic diversification and growth.

Conclusion

Increasing government and stakeholders' commitment and investment in building new and effective cosmetics and beauty care partnership and cooperation platforms, policies and regulatory compliance in meeting public needs is urgently needed in achieving Saudi Vision 2030 and Saudization agenda. Moreover in developing cutting-edge digital and social media marketing and communication to online cosmetics commerce, research laboratories and resource capabilities in scaling up consumer-driven phytomedicine and marine resources usefulness in cosmetics and beauty care investment and market innovations in economic diversification. Hence, promoting consumer-driven healthy cosmetics and beauty culture awareness, educational, marketing and awareness programs is imperative increasing pharmaceutical

or cosmetics and beauty care business opportunities. Ultimately, establishing and strengthening a comprehensive community based cosmetovigilance resilient culture is essential towards evidence-based pharmaceutical, herbal and marine medicine and cosmetics and beauty markets and marketing trends sustainable best practices and quality care outcomes in the Kingdom.

Conflict of Interest

Authors declare no competing interests.

Authors Contribution

Ernest Tambo led the idea, conducted the literature screening and synthesis of primary information. Ernest Tambo analyzed and wrote the primary draft of the manuscript. Ernest Tambo, Hani Almeer and Yonus Alshamrani provided additional information. Ernest Tambo thoroughly revised the manuscript. Authors read and approved the final version of the manuscript.

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References

1. Milam EC, Rieder EA (2016) An Approach to Cosmeceuticals. *J Drugs Dermatol* 15: 452-456.
2. Tambo E, Almeer H, Alshamrani Y (2016) Health and beauty cosmeceuticals industry and market expansion in Saudi Arabia. *Pharmaceut Reg Affairs* 5: 172.
3. Brandt FS, Cazzaniga A, Hann M (2011) Cosmeceuticals: current trends and market analysis. *Semin Cutan Med Surg* 30: 141-143.
4. Mazarrasa I, Olsen YS, Mayol E, Marbà N, Duarte CM (2014) Global unbalance in seaweed production, research effort and biotechnology markets. *Biotechnol Adv* 32: 1028-1036.
5. Kim SK (2014) Marine cosmeceuticals. *J Cosmet Dermatol* 13: 56-67.
6. Pieroni A, Quave CL, Villanelli ML, Mangino P, Sabbatini G, et al. (2004) Ethnopharmacognostic survey on the natural ingredients used in folk cosmetics, cosmeceuticals and remedies for healing skin diseases in the inland Marches, Central-Eastern Italy. *J Ethnopharmacol* 91: 331-344.
7. Al-Saleh I, Al-Enazi S, Shinwari N (2009) Assessment of lead in cosmetic products. *Regul Toxicol Pharmacol* 54: 105-113.
8. Hafting JT, Craigie JS, Stengel DB, Loureiro RR, Buschmann AH, et al. (2015) Prospects and challenges for industrial production of seaweed bioactives. *J Phycol* 51: 821-837.
9. Elazzazy AM, Abdelmoneim TS, Almaghrabi OA (2015) Isolation and characterization of biosurfactant production under extreme environmental conditions by alkali-halo-thermophilic bacteria from Saudi Arabia. *Saudi J Biol Sci* 22: 466-475.
10. Saudi Food & Drug Authority (SFDA) (2016) Saudi Food & Drug Authority (SFDA), Kingdom of Saudi Arabia, Saudi Arabia.
11. Saudi Arabia Food & Drug Authority (S DFA) (2015) Cosmetic Products Clearance Requirements from Customs Ports Executive Directorate of Cosmetics Products Safety Drug Sector-SFDA. Saudi Arabia Food & Drug Authority (S DFA), Kingdom of Saudi Arabia, Saudi Arabia.
12. Al-Marby A, Ejike CE, Nasim MJ, Awadh-Ali NA, Al-Badani RA, Alghamdi GM, et al. (2016) Nematicidal and antimicrobial activities of methanol extracts of 17 plants, of importance in ethnopharmacology, obtained from the Arabian Peninsula. *J Intercult Ethnopharmacol* 5: 114-121.

13. Baumann LS (2007) Less-known botanical cosmeceuticals. *Dermatol Ther* 20: 330-342.
14. Johansson AK, Johansson A, Birkhed D, Omar R, Baghdadi S, et al. (1997) Dental erosion associated with soft-drink consumption in young Saudi men. *Acta Odontol Scand* 55: 390-397.
15. Subedi B, Lee S, Moon HB, Kannan K (2014) Emission of artificial sweeteners, select pharmaceuticals, and personal care products through sewage sludge from wastewater treatment plants in Korea. *Environ Int* 68: 33-40.
16. Shaban YA, El Sayed MA, El Maradny AA, Al Farawati RK, Al Zobidi MI (2013) Photocatalytic degradation of phenol in natural seawater using visible light active carbon modified (CM)-n-TiO₂ nanoparticles under UV light and natural sunlight illuminations. *Chemosphere* 91: 307-313.
17. Moon PD, Kim HM (2012) Antiinflammatory effects of traditional Korean medicine, JinPi-tang and its active ingredient, hesperidin in HaCaT cells. *Phytother Res* 26: 657-662.
18. Thomas NV, Kim SK (2014) Fucoidans from marine algae as potential matrix metalloproteinase inhibitors. *Adv Food Nutr Res* 72: 177-193.
19. Chou TH (2015) Current Application of Lipid- and Surfactant-based Vesicles for Cosmeceuticals: A Review. *Curr Pharm Biotechnol* 16: 1035-1044.
20. Abudayeh ZH, Al Azzam KM, Naddaf A, Karpiuk UV, Kislichenko VS (2015) Determination of four major saponins in skin and endosperm of seeds of horse chestnut (*Aesculus hippocastanum* L.) using high performance liquid chromatography with positive confirmation by thin layer chromatography. *Adv Pharm Bull* 5: 587-591.
21. Lourith N, Kanlayavattanukul M (2016) Biopolymeric agents for skin wrinkle treatment. *J Cosmet Laser Ther* 18: 301-310.
22. Gonzalez N, Perez M (2016) Natural Cosmeceutical Ingredients for Hyperpigmentation. *J Drugs Dermatol* 15: 26-34.
23. Jadoon S, Karim S, Bin Asad MH, Akram MR, Khan AK, et al. (2015) Anti-Aging Potential of Phytoextract Loaded-Pharmaceutical Creams for Human Skin Cell Longevity. *Oxid Med Cell Longev* 2015: 709628.
24. Datta HS, Mitra SK, Paramesh R, Patwardhan B (2011) Theories and management of aging: Modern and ayurveda perspectives. *Evid Based Complement Alternat Med* 2011: 528527.
25. Kadhum WR, Oshizaka T, Ichiro H, Todo H, Sugibayashi K (2016) Usefulness of liquid-crystal oral formulations to enhance the bioavailability and skin tissue targeting of p-amino benzoic acid as a model compound. *Eur J Pharm Sci* 88: 282-290.
26. Fabbrocini G, Saint Aroman M (2014) Cosmeceuticals based on Rhealba® Oat plantlet extract for the treatment of acne vulgaris. *J Eur Acad Dermatol Venereol* 6: 1-6.
27. Aljadhey H, Mahmoud MA, Alshammari TM, Al-Dhaeefi M, Le Louet H, et al. (2015) A qualitative exploration of the major challenges facing pharmacovigilance in Saudi Arabia. *Saudi Med J* 36: 1097-1102.
28. Efferth T, Banerjee M, Paul NW, Abdelfatah S, Arend J, et al. (2016) Biopiracy of natural products and good bioprospecting practice. *Phytomedicine* 23: 166-173.