

A Study on the Packaging Information of Toiletries (Beauty Creams/Lotions) available in Bangladesh

Md. Shah Amran^{1*}, Md. Aslam Hossain¹, Md. Amjad Hossain¹, Md. Aknur Rahman¹ and Md. Najmul Islam²

¹Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Dhaka University, Dhaka-1000, Bangladesh

²Department of Pharmacy, South East University, Banani, Dhaka, Bangladesh

Abstract

Packaging concept comes from our very nature and it saves the substances from contamination by dust, fiber, and microorganism and also from environmental factors such as moisture, temperature. The samples of secondary packaging items of toiletries (beauty creams / lotions) products manufactured in Bangladesh or imported by local distributing agencies, were collected and thoroughly examined from April 01, 2009 to March 31, 2010 on the basis of 16 parameters. These parameters are usually regarded important for the labeling of any cosmetic products from the view point of standards set by national regulatory agencies, such as Bangladesh Standards and Testing Institution (BSTI). The secondary packaging items of 10 cosmetic industries for 10 brands of cosmetics products, respectively, have been collected, sorted/arranged and meticulously studied, and packaging parameters were accumulated for analysis. It has been observed that many of the important packaging information were either completely missing or not properly described on the labels, inserts, inner carton, outer carton and container. This study was aimed at examining to what extent the packaging information is provided in the secondary packaging items of cosmetic preparations.

Key words: Packaging information, cosmetics, beauty cream/lotion, cartoon, insert, label.

Introduction

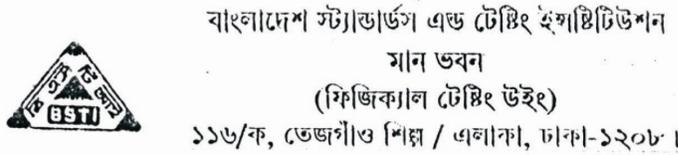
The concept of packaging comes from our very nature that save the substances from contamination by dust, fiber, and microorganism and also from environmental factors such as moisture, temperature etc. Cosmetics are substances used to enhance the appearance or odor of the human body (Amran *et al.*, 2007). Cosmetics include skin-care creams, lotions, powders, perfumes, lipsticks, fingernail and toe nail polish, eye and facial makeup, towelettes, permanent waves, colored contact lenses, hair colors, hair sprays and gels, deodorants, hand sanitizer, baby products, bath oils, bubble baths, bath salts, butters and many other types of products. A subset of cosmetics is called "make-up," which refers primarily to colored products intended to alter the user's appearance. Many manufacturers distinguish between decorative cosmetics and care cosmetics. The U.S. Food and Drug Administration (FDA) which regulates cosmetics in the United States defines cosmetics as: "intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or functions" (Reed, 2007). This broad definition includes, as well, any material intended for use

as a component of a cosmetic product. The FDA specifically excludes soap from this category (Lewis, 2006). Cosmetics, specially beauty creams and lotions are used regularly by a high proportion of ladies and gents having swarthy appearance. Cosmetics products are chemical substances and as a result, they are also very much prone to contamination by dust, fiber, and microorganism and also by environmental factors. So packaging is needed to preserve the integrity of the product and its selection depends on product's physical and chemical characteristics, its protective needs and its marketing requirements. Packaging therefore can be defined as an economical means of providing, presentation, protection, identification/information, containment, convenience and compliance for a product during storage, carriage, display and use until such time as the product is used or administered. This total time scale must be within the shelf life of the product. A package consists of (i) the container in which the product is placed, (ii) the closure which seals the container, (iii) the carton or outer, which gives secondary protection against mechanical and other environmental hazards, and also serves for the display of written information, (iv) the box

* Correspondence to: Md. Shah Amran, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Dhaka University, Dhaka-1000, Bangladesh

in which multiples of the product are packed. Packs are classified into two classes, (i) the primary pack – consists of those packaging components which form the part of the pack directly containing the product. The main functions of the primary pack are to contain and to restrict any chemical, climatic and biological or occasionally mechanical hazards which may cause or lead to product deterioration, and (ii) the secondary pack- the packaging external to the primary pack is known as the secondary packaging. It mainly provides the additional physical protection and patients / consumers information (Carlo, 1986; Dean, 1988; Dean, 1988; Rawlins, 1992; Robert and Pecina, 1985; Khan, 1990, British Pharmacopoeia, 1988, Harburn, 1990; Gennaro, 1990).

According to the Bangladesh Standards and Testing Institution (BSTI) standards, (BSTI ordinance, 2000), the packaging and labeling of a product (any type, including food and cosmetics) (also see the Figure 01) should contain following information: (i) Name and Brand name (if any), (ii) Grade/Type/Size/voltage (if any), (iii) Weight/ Amount, (iv) Code/Batch No., (v) Ingredients of the product, (vi) Date of manufacture, (vii) Date of expiry, (viii) Name and address of original manufacturer (ix) Maximum retail Price, (x) BDS No. with symbol of BDS, (xi) Name and address of manufacturer and importer (in case of imported goods), (xii) Name and address of Packing and marketing Company.



সিএম লাইসেন্স (গুণগত মান সনদ) গ্রহণ/ নবায়নের কার্য সম্পাদন পদ্ধতি :

- ১। সিএম লাইসেন্স গ্রহণ/নবায়নের জন্য সংশ্লিষ্ট প্রতিষ্ঠান কর্তৃক বিএসটিআই'র নির্ধারিত আবেদন ফরম (প্রতিটি পণ্যের জন্য) পূরণ পূর্বক নিম্নবর্ণিত কাগজপত্রসহ দাখিল করিতে হইবেঃ
 - ক) হাল নাগাদ ট্রেড লাইসেন্সের সত্যায়িত ফটোকপি ।
 - খ) ট্রেড মার্ক রেজিস্ট্রেশন এর সত্যায়িত ফটোকপি (প্রযোজ্য ক্ষেত্রে) ।
 - গ) ভ্যাট (VAT) / টিন (TIN) সনদের সত্যায়িত ফটোকপি (প্রযোজ্য ক্ষেত্রে) ।
 - ঘ) পণ্য ব্যবহৃত মোড়ক/ প্যাকেজ (বাংলায়) যাহাতে নিম্নবর্ণিত তথ্যাদি উল্লেখ থাকিতে হইবে।
 - (১) পণ্যের নাম ও ব্র্যান্ড (যদি থাকে)
 - (২) মোড / টাইপ / সাইজ/ ভোল্টেজ (যদি থাকে)
 - (৩) গুণ / পরিমাণ
 - (৪) কোড / ব্যাচ নম্বর
 - (৫) পণ্যের উপাদানসমূহ (প্রযোজ্য ক্ষেত্রে)
 - (৬) উৎপাদনের তারিখ
 - (৭) মেয়াদ উত্তীর্ণের তারিখ
 - (৮) মূল উৎপাদনকারী প্রতিষ্ঠানের নাম ও ঠিকানা
 - (৯) সর্বোচ্চ খুচরা মূল্য
 - (১০) সংশ্লিষ্ট বিডিএস নম্বরসহ গুণগত মান চিহ্ন (Standard Mark)
 - (১১) উৎপাদক ও আমদানিকারক প্রতিষ্ঠানের নাম ও পূর্ণ ঠিকানা (আমদানিকৃত পণ্যের ক্ষেত্রে)
 - (১২) প্যাকেটজাতকারী / বাজারজাতকারী প্রতিষ্ঠানের নাম ও ঠিকানা (প্রযোজ্য ক্ষেত্রে)
- ঙ) আমদানিকৃত পণ্যের ক্ষেত্রে এলসি, ইনভয়েস, বিল অব এন্ট্রি, আই আর সি, ভেজক্রিয়াত্র পরীক্ষার সনদ (শুধু দুগ) খাদ্য পণ্যের (প্রযোজ্য ক্ষেত্রে) এর সত্যায়িত ফটোকপি ।

Figure 1. Bangladesh Standards and Testing Institution (BSTI) standards for food and cosmetics [1(gha)]

Currently, a large number of toiletries products (specially beauty creams and lotions) of different manufacturers are available in the local market in various brand names. The users / consumers, as well as the beauticians, largely rely on the information provided by

the manufacturers on the labeling of these products. Does the labeling of these products bear all the necessary information and instructions? Are the information and instructions well presented and clearly displayed? In deed, this is a critical question for safe and effective use of

cosmetics. Bangladesh is a developing country with poorly organized health and beauty care system. The cosmetics are rarely dispensed to the consumers by qualified personnel. Therefore, importance of proper labeling is much more needed here and this is especially true for these products that are used at grass root level where qualified beauticians are not sufficient / available for providing beauty care services. To the best of our knowledge no work has so far been performed in Bangladesh on instructions/packaging information provided by manufacturers for proper use of cosmetics. In this background, the present work was performed to investigate whether or not the manufacturers provide all the necessary information and instructions on the labeling of cosmetics products available in the local market of Bangladesh.

Materials and Methods

The labeling samples used in this research work included labels, inner cartons and package inserts of the cosmetics products available in the local market (Dhaka metropolitan area). The samples were collected from different retail shops of Dhaka City from April 30, 2009 to March 31, 2010. We collected the labeling samples of 10 brands of beauty creams for this purpose.

Beauty creams/Lotions: The secondary packaging items of a total of 10 cosmetics product of different companies were collected. A total of 10 secondary packaging materials for all products have been accumulated. The samples were collected randomly so as to include all categories of national and multinational toiletries industries. All the collected samples were coded properly and then packaging information of cosmetic products were accumulated for analysis. The following 16 parameters were selected for conducting the present work: (1) Brand Name, (2) Generic name, (3) Composition / Ingredients, (4) Name of the manufacturer, (5) Full Mailing Address of the original manufacturer, (6) Full Mailing Address of the distributor, (7) Manufacturing date, (8) Expiry date, (9) Batch No. /Lot No., (10) Manufacturing Licence No. / Marketing Licence No., (11) Maximum Retail Price, (12) Packaging quantity (Net Weight, Volume), (13) Direction for use, (14) Importance / Utility, (15) Standard Mark with BSTI symbol and (16) Storage condition / Cautions

All the samples were thoroughly checked against these parameters, and the findings were recorded and presented in the tabular form.

Results and Discussion

We worked with 10 cosmetics products (all were in semi-solids forms). We presented the data of percent occurrences of packaging parameters of cosmetics products and then only those parameters that did not occur for 100% or products with incomplete and missing parameters in Table 1.

We worked with 10 cosmetics products (all were in semi-solids forms). We presented the data of percent occurrences of packaging parameters of cosmetics products in Table 1 which shows that many of the important packaging parameters did not occur for 100%, that means they are missing, for example, Full Mailing Address of original manufacturer (80%), Full Mailing Address of Distributor (80%), Manufacturing Date (90%), Expiry Date (90%), Batch No./Lot No. (80%), Manufacturing Licence/Marketing Licence (00%), Maximum retail Price (70%), Direction for use (90%), Standard Mark with BSTI symbol (80%), Storage conditions/Cautions (60%). The above mentioned parameters are very important and they need to be written on the packaging items according to the regulation of BSTI. We observed that these parameters have not been found on the packaging items of many manufacturers and distributors. This is a serious breach of BSTI regulation. It indicates that packaging information of many toiletries (fairness cream) products available in the local market had serious drawbacks about which the practicing qualified person/beauticians and regulatory authority should take necessary actions.

Of the available beauty creams and lotions, many of them are produced by local manufacturing companies and this is a very good sign that our cosmetic industry are running ahead; while many of them are imported, packed and marketed by local distributors. The beauty products do not contain all the relevant parameters on the primary and secondary packaging items. From the physiological point of view, the mechanism of beautification is physiological process involving regulation of melanin formation, secretion and elimination from the body (Figure 2).

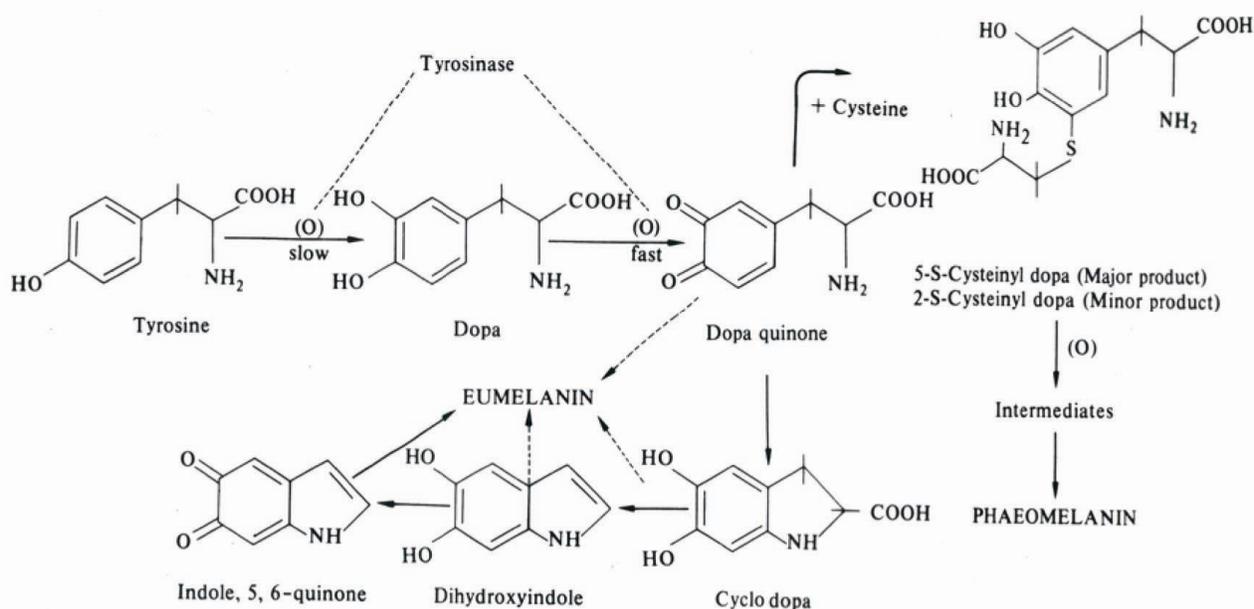


Figure 2. Simplified scheme for the formation of eumelanin and phaeomelanin (Scanned from Wilkinson and Moore, 1994)

Beauty creams and lotions contain chemical compounds that interfere with this physiological process. Three main factors combine to give skin its color, viz- (i) The dermis and epidermal cells provide a background natural yellowish-white color, the dominance of which depends on degree of skin thickness; (ii) The superficial blood vessels of the skin contribute to a red to blue tone, the intensity depends on the number and state of dilation of the blood vessels and their nearness to surface and the color upon the degree of oxygenation of the blood, (iii) The most important contribution is that of the pigments carotene, and most important of all, the brown to black melanins which are principally responsible for racial color differences.

Melanin is synthesized in cells known as melanocytes which are normally found in the epidermal basal layer (Figure 3).

The control of melanin production is due both to the direct stimulatory effect of the ultraviolet light and to a hormone, the Melanocyte Stimulating Hormone (MSH), secreted by the anterior pituitary gland. Estrogens also exert a localized effect especially evident during pregnancy. Negroid skin is black and Caucasoid skin is white. The number of melanocytes is similar in both

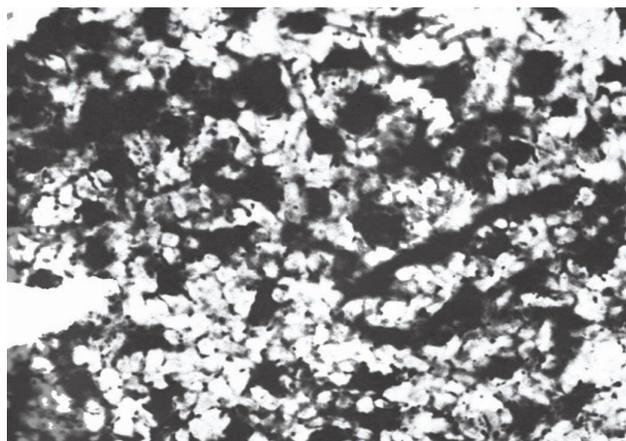


Figure 3. Melanocytes on underside of epidermis (Scanned from Wilkinson and Moore, 1994)

Human skin pigmentation also depends on geographical distribution. Protection from ultraviolet radiation where it is intense and increased synthesis of vitamin D where there is minimal ultraviolet light, provide selective role in determining skin color. The protective function of the melanin also seems to be two fold. Firstly, in the short term it protects the deeper layers of the dermis against immediate damage by the ultraviolet radiation and secondly, in the long term it affords protection against cancer (Wilkinson and Moore, 1994). Beauty creams in

general exert their beautification action in two ways, viz- (i) by acting as sun screener and (ii) by temporary suspension of the formation of melanin. As these are active chemical compounds, these must have adverse effects and proper care during use is necessary. But in our present study we have found that not a single

manufacturer or distributor warns the users about possible adverse effects. Many of the beauty creams temporarily suspend the formation of melanin and thus protective effect of melanin is hampered.

Table 1: Percent Occurrences of Packaging Parameters of Fairness Cream

Parameters	Sample Code										% Occurrence
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	
Brand Name	+	+	+	+	+	+	+	+	+	+	100
Generic Name	+	+	+	+	+	+	+	+	+	+	100
Composition / Ingredients	+	+	+	+	+	+	+	+	+	+	100
Name of Manufacturer	+	+	+	+	+	+	+	+	+	+	100
Full Mailing Address of original manufacturer.	+	+	-	+	+	-	+	+	+	+	80
Full Mailing Address of Distributor	+	+	-	-	+	+	+	+	+	+	80
Manufacturing Date	+	+	+	-	+	+	+	+	+	+	90
Expiry Date	+	+	+	-	+	+	+	+	+	+	90
Batch No./Lot No.	+	+	-	-	+	+	+	+	+	+	80
Manufacturing Licence //Marketing Licence	-	-	-	-	-	-	-	-	-	-	00
Maximum retail Price	+	-	-	-	+	+	+	+	+	+	70
Packaging Quantity (Net weight, Amount, Volume)	+	+	+	+	+	+	+	+	+	+	90
Direction for use	+	+	+	-	+	+	+	+	+	+	90
Importance/Utility	+	+	+	+	+	+	+	+	+	+	100
Standard Mark with BSTI symbol	±	+	-	-	+	+	+	+	+	+	80
Storage Conditions / Cautions	±	+	-	-	+	+	-	+	-	+	60

Note: C1 = Ponds cream, C2 = Emami, C3 = Dove, C4 = Nivea, C5 = Fair & Lovely, C6 = Gernier, C7 = Tibbet, C8 = Elite Mesta Gard, C9 = Cute, C10 = Fair & Lovely (Menz Active).

+ = Presence of the parameter, - = Absence of the parameter, ± = Partial presence of the parameter (the said parameter was found in some products of the same manufacturer/distributor while in some other it was absent)

Conclusion

It has been found that many of the important packaging information both general and clinical were either completely missing or not properly described on the insets, labels, boxes or cartons of the beauty creams/lotions either imported or locally manufactured and available in the local market of Bangladesh. Packaging information is equally important to beauticians and lay peoples specially beauty conscious ladies who use beauty creams/lotions.

Acknowledgement

This project was funded by Bangladesh Medical Research Council (BMRC/HNPSP-RP/2008-09/776(1-86)).

References

- Amran, M.S., Ahmed, M., Shaheen, S.M., Morshed, S.N., Khandakar, M.J.A., Rahman, M.M., Rahman, M.M. and Hossain, M.A., 2007. A study on the packaging information of essential drug products used at Union and Thana health complex level in Bangladesh. *Pak. J. Pharm. Sci.*, **20**, 327-332.
- Bangladesh Standard and Testing Institution, (Physical Testing Wing), 2000. 116/ka, Tejgoan I/A, Dhaka-1208.
- British Pharmacopoeia, 1988. Volume I & II, Appendix XIX, UK, pp. A211-18.
- Carlo, P.C., Arther, F. and Ralph, H.T., 1986. Packaging materials science, In: The Theory and practice of industrial pharmacy, (Eds, Leon Lachman, Herbert A Lieberman, Joshep L Kanig), 3rd ed., Lea and Febiger, USA, pp. 711-32.

- Dean, D.A., 1988. Packs for pharmaceutical products. In: *Pharmaceutics – the science of dosage form design*, (Ed. M.E. Aulton), ELBS, Churchill Livingstone, U.K. pp. 215-22.
- ibid.* pp. 712-24.
- Gennaro, A.R. (Ed.), 1990. *Remington's Pharmaceutical Science*, 18thed., Mack Publishing Company, Easton, Persylvania 18042, USA, p. 1826.
- Kenneth, H., 1990. Quality control of packaging materials in the pharmaceutical industry, MerceL Dekker Inc. New York, p. 175.
- Khan, M.S.N., 1990. Assurance of quality pharmaceuticals-total quality approach, Signet Press Ltd. Bangladesh, pp. 61-75.
- Lewis, C., 2006. FDA. "Clearing up Cosmetic Confusion." The marketing industry is now targeting young girls to wear 'super cool lip gloss' and 'fairy glitter eye shadow', by throwing them in with toys in a box and claiming that 'girls will be girls', are they truly being girls or another plastic? pp. 22-31.
- Rawlins, E.A., 1992. *Packaging*, Bentley's textbook of pharmaceuticals, 8th edition, Bailliere Tindal, India, pp. 685-709.
- Reed, S.I., 2007. US Department of Health and Human Services. "Cosmetics and Your Health." pp. 14-23.
- Robert, L.G., Pecina, R.W., 1985. Plastic packaging materials, In: *Reminton's Pharmaceutical Sciences*, (Ed. Alfonso R Gennaro), 17thed, Marck publishing company, USA, pp. 1473-77.
- Wilkinson, J.B. and Moore, R.J., (Ed), 1994. *Harry's Cosmetology*, 7thed, Longman Scientific and technical, pp-264-275,415.