

# Chapter 11

## Cosmeceuticals: Camel and Other Milk – Natural Skin Maintenance

**Reuven Yagil**

*Ben-Gurion University, Israel & Beauty Treat Organic Cosmetics Ltd., Israel*

### **ABSTRACT**

*This chapter will deal with delivering of a substance in a natural product, milk, via the skin – cosmeceuticals, from a variety of sources, camels, equine, ruminant and breast milk. The large quantities of bacteria on the normal skin, both friendly and “bad” bacteria provide skin and body health. The activity of cosmeceuticals of camel milk is due to the specific milk components, whose efficacy is retained in skin preparations which have not been destroyed in their preparation. By using camel milk which is pathogen-free the preparations are probiotic by definition and rapidly penetrate the outer skin layers to be active in the deeper layers. Massage therapy has been shown to improve flexibility and range of motion and strengthen the immune system. A list of the organic substances used for making the cosmeceuticals is provided.*

### **MILK COSMECEUTICALS: A NOVEL APPROACH FOR EXTERNAL DRUG DELIVERY**

This chapter will deal with a novel approach to delivering natural active substances, milk, especially camel milk, on and via the skin, in the form of cosmeceuticals. The milk is not only a vehicle for added substances but naturally contains substances that are “skin-friendly and healthy”. This work provides information how milk is active on and in the skin.

Transdermal drug delivery has made an important contribution to medical practice, but has yet to fully achieve its potential as an alternative to oral delivery and hypodermic injections. For thousands of years, people have placed substances on the skin for therapeutic effects and, in the modern era, a variety of topical formulations have been developed to treat local indications. The first transdermal system for systemic delivery—a three-day patch that delivers scopolamine to treat motion sickness—was approved for use in the United States in 1979. A decade later, nicotine patches became the first transdermal blockbuster to reduce smoking, raising the profile of transdermal delivery in medicine and for the public in

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general. Today, there are 19 transdermal delivery systems for such drugs as estradiol, fentanyl, lidocaine and testosterone. It is common for women after menopause to have estrogen patches to help in preventing osteoporosis. However, the patches must not be placed on or close to the breasts in order to prevent breast cancer from occurring.

Perhaps the greatest challenge for transdermal delivery is that only a limited number of drugs are amenable to administration by this route.

Transdermal delivery offers compelling opportunities to improve vaccine administration. The most successful vaccine of all time—the smallpox vaccine, which eradicated the disease worldwide—was administered via the skin with the aid of a small needle device to breach the stratum corneum barrier.

Cosmeceuticals are the combination of cosmetics and pharmaceuticals with biologically active ingredients purporting to have medical or drug-like benefits (Yurystyn et al, 2014).

Cosmeceuticals contain active ingredients that are known to be beneficial to humans in some way. For example, vitamin C is a known antioxidant and when this is added to a lotion or cream the product is considered a cosmeceutical (see below).

Before presenting data about cosmeceuticals it is pertinent to provide data about our skin itself.

## **HUMAN SKIN**

Skin is the largest body organ. It has three layers: the epidermis, the outermost layer of skin, which provides a waterproof barrier and creates our skin tone. The dermis, beneath the epidermis, contains tough connective tissue, hair follicles, and sweat glands. The deeper subcutaneous tissue (hypodermis) consists of fat and connective tissue.

There are around 1000 species of bacteria on human skin (De Noon, 2009) from 19 phyla. The total number of bacteria on an average human has been estimated at 1 trillion. Most are found in the superficial layers of the epidermis and the upper parts of hair follicles. The benefits of most bacteria can offer prevention of transient pathogenic organisms from colonizing the skin surface, either by competing for nutrients, secreting chemicals against them, or stimulating the skin's immune system (Kanodia et al, 2007.). Therefore, our “good bacteria” crowd out pathogenic bacteria, some even secreting a natural antibiotic to ward off these bad bacteria and secure more space for themselves. Note! When we wash our hands to remove pathogens, we are also removing bacteria that can help protect us against those same pathogens as well as other diseases.

Dehydrated skin is a condition where the skin has limited or a lack of moisture in the intracellular system of the skin. Skin dehydration can be problematic all year round. Your skin is more susceptible to dehydration in the winter due to aggressive environmental factors. It is very important to monitor the signs and symptoms regularly to treat it when needed. Age, location and amount of time spent outside are all factors that can impact the condition of your skin.

The skin can feel tight and you may feel a burning sensation. It will often get irritated and has a lesser ability to heal. The skin sometimes gets flaky and shows dry lines. The texture of the skin will be rough and will not look smooth anymore. A very common sign of dehydrated skin is extreme itching, which can even become painful.

Camel creams prevent further loss of moisture from the skin but drinking is the only way to reinstate body hydration.

When the outer skin layers are compromised, bacteria gain access and can cause infections.

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