

FEATURE

Shedding Winter's Coat

How to exfoliate with enzymes & acids to shed skin's winter coat

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Exfoliation should be an essential step in everyone's skin care routine! Whether you are blessed with clear skin, prone to acne or rosacea, or suffer from hyperpigmentation, exfoliation assists with both preventing and treating numerous skin conditions. Exfoliation has evolved substantially since the days when

the skin was scrubbed with pumice stones or sand, and it's progressed significantly in the past few years as newer ingredients have been discovered.

Throughout this article, we'll examine exfoliating enzymes and some newer, novel acids that are effective in helping shed the dry, dehydrated skin associated with winter just in time for spring. We'll differentiate between their properties and benefits, and identify the ideal candidates for their use, including even the most sensitive skin types.

Choosing the Ideal Exfoliant

Though exfoliation can be beneficial to everyone, utilizing the correct exfoliants for each skin type and skin condition with the appropriate frequency is critical to achieving the best results. Doing so will prevent over-sensitizing the skin or worsening the conditions you are trying to treat. Though the focus of this article will be on exfoliating enzymes and newer, novel acids, understanding all categories of exfoliants is critical in choosing the best treatment for your clients. Let's examine the other categories of exfoliants further.



PHYSICAL EXFOLIANTS. This is the oldest form of exfoliation that physically "buffs" off dead skin cells, and is most appropriate for non-sensitive skin without active, open blemishes. Additionally, little to no pressure should be used when working with physical exfoliants on the skin. Natural physical exfoliants that are gentler on the skin include poppy seeds, olive seeds, tagua nut powder and rice powder.

ALPHA HYDROXY ACIDS (AHAS). Alpha hydroxy acids are water-soluble acids of varying molecular size, which affects their rate of penetration into the epidermis. AHAs and their common sources include glycolic (sugar), lactic (dairy), malic (apples),

tartaric (grapes), citric (citrus fruits) and mandelic (bitter almonds) acids. Generally, AHAs are most effective at treating dehydrated, hyperpigmented skin, or skin with fine lines and wrinkles.

AHAs exfoliate the skin by breaking down the skin's water-based intracellular cement (desmosomes), increasing cellular turnover rates.¹ Many AHAs also have humectant properties, attracting water to the skin, which can improve barrier function and hydration. Some AHAs such as mandelic acid have also been shown to effectively treat blemish-prone skin, due to their anti-bacterial and anti-inflammatory properties.²



BETA HYDROXY ACIDS (BHAs). Salicylic acid is typically the only BHA utilized in skin care and is generally best suited for oily, inflamed and blemish-prone skin, including oily rosacea. Salicylic acid is an anti-inflammatory, oil-soluble acid that is desmolytic,

meaning it encourages individual corneocyte desquamation. It is also comedolytic, which means it prevents and resolves existing comedones.³ These actions prevent and treat blackheads and congestion in the skin, as well as reduce redness and swelling associated with acne and rosacea. Salicylic acid also contains anti-inflammatory and antiseptic benefits, further helping to treat the symptoms and causes of acne.

Enzyme Ingredients

Enzymes are a perfect way to break down your skin's dry, dehydrated winter coat because they digest and dissolve any excess, accumulated skin cells. Our skin is primarily composed of a protein called keratin. As we age, the top layer of our epidermis (the stratum corneum) thickens due to decreased cellular turnover rates and increased cellular cohesion.⁴ The chill and dryness of winter weather can also slow down the turnover of our skin cells, creating a similar appearance on the skin to that of aging. You could liken this thickened state of the stratum corneum to a callous on the skin, which results in the skin looking dull and dehydrated, as well as wrinkles and hyperpigmentation becoming more pronounced.

Enzymes are proteolytic, meaning they digest these proteins, often likened to a Pac-Man, breaking down the increased keratin. Through this digestion, dead skin cells are softened and removed, revealing more radiant, hydrated cells underneath. Fine lines and wrinkles are also diminished, and collagen and elastin are stimulated. Additionally, enzymes assist in accelerating the turnover of dead melanocytes and abnormal pigment deposits in the skin, thus reducing the appearance of hyperpigmentation.



The primary sources of enzymes used in skin care are pineapple, papaya, pumpkin, and yams, which each have their own beneficial properties (**See Enzyme Ingredients Sidebar**).

Can these enzymes be used together in skin care? Yes, they absolutely can! When various enzymes are combined, keratin digestion increases, providing stronger exfoliation to the skin. Additionally, if skin care products include the whole fruits and vegetables that enzymes are sourced from, rather than just their enzymes, even more benefits are provided for the skin.

This includes increased antioxidant protection and nourishment through the various vitamins these ingredients contain, as well as their naturally occurring exfoliating acids. For example, pumpkins also contain alpha hydroxy acids and retinoic acid, which further assist in increasing cellular turnover rates and inhibiting hyperpigmentation caused by UV-rays and other free radical sources. Pumpkin also contains vitamins A, C and E which nourish and protect the skin from oxidative damage.

Enzyme Ingredients

Let's discuss each of these ingredients, the enzymes they contain, and their beneficial properties further:

- **Pineapple.** The enzyme found naturally in pineapples is bromelain and is generally viewed as the mildest of enzymes in its action of exfoliation. Bromelain also provides anti-inflammatory benefits to the skin, making it generally appropriate for use on all skin types, including sensitive skin.
- **Papaya.** Papaya naturally contains an enzyme called papain. This enzyme is similar to bromelain from pineapple, but it is viewed by some as being more active in its proteolytic action.
- **Pumpkin.** Pumpkin's proteolytic enzymes are viewed as more active than other enzymes. Pumpkin enzymes are also particularly effective in treating hyperpigmentation, latching onto pigment deposits, dead melanosomes and other components that lead to uneven skin tone, helping to turn them over and brighten the skin.
- **Yam.** Yam produces an enzyme called amylase which softens and conditions the skin for a smoother, more hydrated appearance.

Controlling Enzymatic Exfoliation

As with any exfoliant, one of the most important considerations in incorporating enzymatic exfoliation into the treatment room or our client's home care routine, is controlling any enzyme's levels of exfoliation. Here are some ways we can control the exfoliation action of enzymes in a professional treatment or in our client's home care routine.

- **Cleansers.** A cream-type cleanser contains higher amounts of lipids and emollients than their foamy counterparts, thus leaving protective salves on the skin after their removal. These leftover lipids and emollients limit the exfoliating action of any enzymes applied afterward. Conversely, a gel or foamy cleanser will strip the skin of any surface lipids, leading to stronger exfoliation action of enzymes when the exfoliation is performed.
- **Toners & Pre-Peels.** Additional steps you may consider to increase the strength of an enzymatic exfoliant is applying a pre-peel solution or a more astringent toner onto the skin with a cotton round. This further strips the skin of lipids and pre-exfoliates dead skin cells, facilitating a more intense exfoliation from any enzyme applied to the skin.
- **Heat and Moisture.** While the activity levels of acid-based exfoliants and peels are dependent on a product's formulated pH, most enzyme-based exfoliant activity is not. Instead, enzymes are activated and amplified by heat and moisture. One way of increasing levels of heat and moisture to amplify enzyme activity is by using a steamer machine on top of the exfoliant. If the client has sensitive skin or if it is their first time receiving an enzymatic exfoliation treatment, avoiding heat and moisture is recommended.

These general rules can be recommended for our clients to incorporate enzymes in their home care routines. As spa professionals, we must make necessary adjustments in clients' routines based on their skin types and conditions, and how their skin responds to incorporating enzymatic exfoliants.



Novel Acids for All Skin Types

Although enzymatic exfoliants like bromelain are generally safe to use on every skin type and condition (depending on their formulation), clients with the most sensitive skin and allergens won't be able to utilize enzymes in their professional facials or home care. Newer, novel acids like polyhydroxy acids (PHAs) and tranexamic acid are alternatives that can be used on almost all skin types, providing multiple benefits like: diminishing hyperpigmentation, refining the skin's texture, boosting hydration, smoothing the appearance of wrinkles, and reducing inflammation without increasing the skin's sensitivity.

POLYHYDROXY ACIDS. PHAs offer similar benefits as AHAs, including refining the skin's texture, increasing hydration, reducing hyperpigmentation and providing antioxidant protection.⁵ The main difference is that these benefits are achieved without increasing sensitivity or reactivity in the skin, even when compared with

lactic acid. This lowered reactivity is due to PHAs' larger molecule size, which causes shallower, more delayed penetration into the skin. Some examples of PHAs include lactobionic acid, gluconolactone and galactose. These PHAs offer an opportunity to sprinkle gentle "doses" of exfoliation through various steps of skin care, both in the professional treatment and clients' home care routines. This staggered dosing helps achieve a similar result without any increased sensitivity, rather than only applying a high percentage using professional peels.

TRANEXAMIC ACID. Though tranexamic acid is not typically utilized as the primary acid for exfoliation, it can work as a beneficial supporting acid in peels, exfoliants and serums, providing an effective approach to improving all forms of hyperpigmentation. It is believed that tranexamic acid achieves effective treatment and prevention of hyperpigmentation by inhibiting melanin synthesis.⁶

Shed Winter Skin

In summary, all skin types can benefit from appropriate exfoliation, especially after the effects of the winter weather on the skin. Enzymes offer a remarkable, yet practical solution to this challenge by digesting and dissolving dead, dry skin cells, refining the texture of the skin and revealing radiant skin underneath. In addition, PHAs can effectively boost hydration, reduce hyperpigmentation and refine the skin - all without increasing sensitivity, and may be used as an effective alternative exfoliant for those clients that are extra sensitive or those who present with allergies to enzymes.

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