



γ-Hexalactone

This ingredient is one of the most useful hay notes, adding depth and succulence.

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Many recipes from the relatively recent past can seem very dated today and only the most original have stood the test of time. One of my favorite recipes, created three decades ago at the legendary Miller Howe restaurant in Cumbria, England, is centered around the highly dramatic idea of baking a leg of lamb, covered with hay, in a completely closed metal casserole at very high temperatures. The successful TV chef at the heart of the restaurant at that time, John Tovey, had morphed from a career in the theater into cooking, so the theatrical aspect of many of his dishes was an inevitable part of Miller Howe's attraction. The hay smoldered, but did not burn, and the lamb became transformed by a delicious combination of delicate smokiness underpinned by a strong infusion of sweet hay. This dish isn't something to cook every day, perhaps, although it is delicious. The magical effect of the sweet hay note is not exactly limited to lamb; that note, represented by quite a large number of flavor chemicals, is very widespread in nature. Even when it is not naturally present, it can often be a delicious addition to a flavor profile, providing attractive depth and succulence. γ-Hexalactone (FEMA# 2556, CAS# 695-06-7) is, in my opinion, one of the most useful hay notes. It is free from the regulatory challenges of the coumarin family and has a very clean odor profile that can be used successfully in an extremely wide range of flavors.

Tropical Flavors

Coconut: Despite the fact that γ-hexalactone is primarily hay rather than coconut in character, the two creamy profiles are quite closely linked. Relatively high levels can be used, in the region of 5,000 ppm, in coconut flavors destined



for confectionery applications. Around a tenth of this level gives a more authentic effect, and even lower levels work best in coconut water flavors.

Pineapple: This hay note adds depth to pineapple flavors and counterbalances the dominant fruity notes at around 500 ppm.

Passion fruit: The effect in passion fruit flavors is very similar to that in pineapple flavors, and its ideal level is also 500 ppm.

Mango: More moderate levels work better in mango flavors but the effect is, once again, quite similar. Three hundred ppm is a good starting point.

Mangosteen: A level of 300 ppm is also an effective level of addition of γ-hexalactone in mangosteen flavors, adding realism and depth.

Soursop: Much lower levels, in the area of 100 ppm, are useful in soursop flavors to add depth and complexity.

Kiwi: Kiwi flavors are necessarily subtle, and only 50 ppm of γ-hexalactone is required to add a slight, attractive extra depth.

Other Fruit Flavors

Apricot: This ingredient works exceptionally well in apricot flavors, particularly the more floral flavors that are typically used in confectionery. For this type of flavor, levels of use can range up to 2,000 ppm; however, more authentic, fresh profile flavor levels of around 500 ppm are preferred.

Peach: The effect of γ-hexalactone in peach flavors is very similar to that in apricot flavors but the ideal level of use is lower, around 400 ppm.

Strawberry: The combination of lactones that form an important part of the profile of strawberries is very similar to, but less dominant than, that of peaches and apricots. Therefore, it is no surprise that this lactone works well in strawberry flavors at around 200 ppm.

Blackcurrant: This ingredient is probably wasted in typically buchu blackcurrant flavors, but it can add very interesting depth to more authentic flavors at 150 ppm.

Plum: Plum flavors are of only regional importance, but they can be

quite difficult to make realistic. A level of 150 ppm of this chemical is very helpful.

Raspberry: Here the effect is rather more subtle, and 100 ppm is all that is required to add authenticity and depth to raspberry flavors.

Blackberry: Blackberry flavors are similarly constructed to raspberry flavors, and the ideal level of addition of γ -hexalactone is 100 ppm.

Cherry: A level of 100 ppm is also the ideal level in all types of cherry flavors, possibly slightly higher in flavors that are intended to be more realistic.

Brown Flavors

Caramel: Very high levels of γ -hexalactone can be used in caramel flavors, especially those intending to recapture something of a coumarinic note. A level of 2,000 ppm is a good place to start.

Brown sugar: Almost equally high levels, around 1,000 ppm, are also effective in brown sugar and molasses flavors.

Vanilla: Levels of use in vanilla flavors vary according to the style of flavor. Higher levels, around 500 ppm, work well in French style or Tahiti vanilla flavors. Much lower additions, in the region of 50 ppm, are better for authentic Bourbon bean-style flavors.

Black tea: γ -Hexalactone works best in black tea flavors, and 300 ppm is a good starting point. Much lower levels should be used in green tea flavors, around 50 ppm.

Coffee: Coffee flavors can easily become over-reliant for depth on maple notes, and this ingredient provides a welcome contrast at 200 ppm.

Chocolate: Here the effect is quite subtle, ranging from 50 ppm in dark chocolate and cocoa flavors to around 150 ppm in milk chocolate flavors.

Dairy Flavors

Milk: γ -Hexalactone performs very well in fresh milk flavors, working perfectly in conjunction with the main γ -lactone complex at around 800 ppm.

Condensed milk: The effect is similar in condensed milk flavors, but the best level of use is rather lower, in the region of 600 ppm.

Cheese: Levels of use vary depending on the type of cheese: higher in creamy cheeses such as cheddar (around 400 ppm) and lower in blue cheese flavors (around 50 ppm).

Cream: Realistic cream flavors are best served by moderate levels of addition of γ -hexalactone, around 200 ppm, but higher levels can be used in more confectionery oriented flavors.

Butter: A level of 100 ppm is all that is needed of this chemical to give attractive depth and complexity to fresh butter flavors.

Other Flavors

Grilled and roast beef: Here, almost at the end of the article, we finally get close to the concept of the introductory

smoldering hay lamb dish. Levels of use can be quite varied in meat flavors, but 300 ppm is an interesting introductory level.

Hazelnut: Two hundred ppm is a very effective level of addition in hazelnut and praline flavors, adding attractive depth.

Walnut: The ideal level in walnut flavors is a little lower, around 150 ppm. This chemical also works well in other nut flavors at more subtle levels.

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