



THE BEVERAGE PEOPLE

Brewing with Herbs and Spices

By Joseph Hanson-Hirt

Looking for something different to brew? Looking to impress your friends with a brew like nothing they've ever experienced before? Ever thought of adding herbs, spices, or flowers to your beer?

Hops are the most common herb in beer nowadays, but that hasn't always been the fact. Hops have only really been a major brewing ingredient for about the last 500 years. Perhaps you've heard of the *Reinheitsgebot*, the Bavarian Purity Law limiting the ingredients that could be used to make beer to just water, barley, and hops. Long before the *Reinheitsgebot* a plethora of ingredients were used to bitter, flavor, and add aroma to beers. The Scots are famous for their beer made with heather. Belgian Wits are commonly spiced with coriander and bitter orange peel. In Scandinavia, juniper berries were often found in brews and still are today.

There are several methods for adding spices and herbs to your brews with various advantages or disadvantages. As you experiment with these new ingredients, remember to constantly taste at various stages and record all measurements and additions, including times. Your efforts will continue to improve as you continue to experiment.

Let's consider first simply adding the herbs or spices along with the other ingredients that are boiled as this may be the easiest method. Adding herbs or spices to the boil is a good way to ensure they are sanitized. Contact with heat may help to round off some of the rougher flavors by cooking them out. There are, however, some disadvantages too. Boiling can drive off delicate aromas and increase the extraction of tannin compounds. Therefore, it is recommended that these additions be added only during the last 5 minutes of the boil to reduce any negative effects.

Our second choice would be to add herbs and spices

into the fermentation. Though it may be tempting to add herbs and spices to the primary fermentor, it is best not to do so. As is the case with hop additions at this point, the vigorous production and out-gassing of carbon dioxide will carry away delicate volatile oils as the beer ferments. The yeast may also have a reaction towards the herbs or spices that could be negative. The overall effect of adding herbs and spices to an active fermentation will be that the area around the fermentor will smell like the ingredients added, but the beer itself will not retain much of the aroma.

A third choice would be to add these ingredients to the secondary fermentor – a dry-spicing, if you will. Just as hops can be added to a secondary for an extra boost of aroma, herbs and spices can also be added to the secondary after the beer has been racked off the trub (sediment). With little to no carbon dioxide being produced, aromas and flavors can be retained in the final beer. With no heat, the chances of extracting harsh tannin compounds are also reduced. Treat the herb or spice addition like a dry-hop addition, by using a muslin or nylon hop bag to make cleanup easier. Taste the beer each day to get an idea of how fast flavor is being picked up. (It's a job, but somebody has to do it!) When the desired intensity is reached, simply remove the bag of herbs or spices, or siphon the beer off, leaving the residue behind. *Caution: if you do not have experience adding any herbs or spices, it is recommended that you add on the lighter side of a recipe recommendation and taste after a few days. It's always easier to add more, but impossible to remove too much.*

Here are several methods for adding herbs and spices at bottling time which I really recommend. Bottling additions give you a great deal of control and you get the benefit of adjusting the flavor to taste while maintaining aromas.

Some herbs and spices can be added raw directly to the bottle. For instance, one might add a chili pepper, a black peppercorn, or a clove directly to each bottle for a little extra kick. This technique works well with ingredients with milder flavors and aromas. It should be avoided with extremely pungent ingredients like

rosemary, ginger, or cinnamon. Make sure to record how much was added. Also record the date in which the herb or spice was added. Some ingredients may be desirable for a period of time but then become harsh or unpleasant if the contact time is too long. Should that happen to you, you will start to know the window of time for best flavor.

Herbs and spices can also be added by making a tea.

A tea uses water to solubilize the oils and flavors of the ingredient by either a hot or cold steeping. Each has their own merits and in general cold steeping is smoother, but not as effective so will require both more time and more ingredients to achieve the full effect.

Herbs such as rosemary or mint, with their pungent aromas, are probably best extracted through a hot steeping. Think of it just like making tea. Add a measured amount of the ingredient and allow it to steep in a measured amount of non-chlorinated just boiled water. Record how much time you allow the ingredient to steep as extraction time may be important. When finished steeping, pour the tea through a strainer or coffee filter to remove the majority of the solids.

Other herbs or spices may be better extracted through cold steeping. For instance, cold steeping is an easy way to take advantage of the cleanest flavors and aromas of coffee without the harshness generated under heat.

The most effective, cleanest, and controllable method of adding herbs and spices to a brew is Byron's technique of making a tincture.

A tincture is simply an alcohol extraction of an ingredient. The alcohol serves to both sterilize the ingredient and to solubilize the aromatic components. These aromatic components are usually more soluble in alcohol than in water. To make one, add a measured amount of the herb or spice to a re-sealable container, preferably glass (Mason jars work well). Always add more herbs or spices than you think you need. To that volume, add twice the volume of a strong neutral spirit, such as vodka or *Everclear*. Allow the mixture to sit for a week or two in the sealed container. It is recommended that the tincture be tasted at some point to check for flavor development and to see if it needs more of anything else. When the tincture is ready, filter it through a strainer or coffee filter.

My girlfriend makes a vanilla tincture for cooking by soaking two whole vanilla beans in vodka in a pint mason jar. This not only works in baking, but beer as well. She even adds it directly to a porter or stout she is drinking.

You can even use your favorite commercial spirits or liqueurs to make a tincture. Just remember that many commercial liqueurs contain sugars that are fermentable and will add to the volume of priming sugar should you bottle rather than keg the beer.

General list of potential herbs and spices you can use in brewing. (From *Radical Brewing* by Mosher)



Vanilla – soft, enveloping taste and mouth-
feel; able to mask other flavors; in a pinch is
useful for covering up unwanted fermentation
characteristics such as lactic sourness, flavor
porters and stouts

Coriander – seeds of cilantro; complex lemon-
resin flavor; essential for Belgian witbiers;
resinous, often vegetal or celery-seed aroma

Cinnamon – dry, woody, delicate aroma; easy to
overdo; good in Christmas ales

Cardamom – bright, resinous, astringent taste, a bit
citrusy, nice in raspberry beer

Bitter orange peel – herbal, citrusy flavor and
aroma

Sweet orange peel – orange like you find in

dessert orange liqueurs

Licorice – a unique persistent sweetness; was once widely used as a colorant in porter at a rate of 1 oz. per 5 gallons; used in some dark Belgian ales

Sarsaparilla – licorice and vanilla aromas

Chamomile – flowers, fragrant, sweet aroma reminiscent of Juicy Fruit gum; used in witbiers to add fruitiness

Paradise seed – seed of a reed-like plant of the ginger family, native to tropical western Africa; related to cardamom; flavor intense and complex; intensely hot, white pepper taste with a spruce/ juniper aroma; spice that enhances other flavors; doesn't have the lemony/ minty flavor of common Cardamom – use 0.07 oz. (2.1 g.) – 0.2 oz. (5.6 g.) per 5 gal batch, very potent, with a sharp, white pepper taste with spruce plywood aroma

Mugwort – bitter, once used as a beer-bittering herb, gruit ales

Spruce tips – new-growth tips are traditionally used; produce a refreshing resinous flavor; historic American beer flavoring

Redwood tips – similar to spruce or fir, but very North Coast

Coffee – good for adding complexity to stouts or strong porters; cold extract added to the secondary gives the cleanest flavor; can be harsh when boiled

Hibiscus – floral and a bit tart, tea-like

Cloves – deep, rich flavor; very good in beer, especially Christmas ales with other spices in the mix

Basil – delicate minty/ anise aroma; fresh leaves far superior to dried

Chile pepper – adds heat; add layers of deep rich taste; important to try to balance the heat, chili flavor, and malt (not easy); consider smoking the chilies for a different character

Caraway seed – unique, deep rounded flavor, spice goes with rye

Peppermint – minty aroma and cooling spice taste; very aggressive aroma, use sparingly; fresh mint at grocery stores is often spearmint

Heather – tiny purple blooms of a Scottish shrub; delicate, buttery/ honey-like taste; particularly good in honey beers

Nutmeg – complex, rich taste; enhances other flavors; very potent; classic in Christmas beers

Rosemary – minty, resinous aroma; very potent aromatic

Black pepper – adds depth and complexity to beer, especially dark ones; enhances other flavors; use in small quantities; less than a teaspoon per 5 gal

Ginger – sharp, peppery, yet earthy flavor that can dominate a beer easily; use restraint; fresh, dry, or candied; fresh young roots have a pinkish tinge to the flesh and a superior flavor; candied ginger seems to be of much better quality, milder and purer-tasting than fresh

In order to achieve the greatest measure of control, follow the directions here for holding a tasting trial before making your additions.

1. Set up your taste trial to ensure that the addition will be neither over or underdone. It is best to work with a measuring device such as a pipette, syringe, or graduated cylinder. Whichever device you choose, make sure you use the same device for all the measurements.
2. Start with several glasses with the same measured amount of beer (such as 3 glasses with 4 oz. of beer each). Then carefully dose each glass with increasing amounts of the additive. (1 mL for glass one, 2 mL, then 3 mL) Smell and taste each one.
3. If you still do not have the dose you want, prepare another glass with more additive until you are satisfied. When you've got it, record the final mL used. Refer to Table 1 and follow the directions to add the correct amount for the full 5 gallons. Add the tincture to your bottling bucket with the priming sugar and bottle it up!
4. If using a raw ingredient, weigh the ingredient and record the weight before adding.

Tip: After I have found what seems like the ideal addition, I add more of that ingredient and taste it.

Adding more helps me determine at what point it becomes unpleasant. This step has helped to make my future additions easier to target.

Table 1

Assuming you are using 4 oz. beer samples for the tasting trial, to find out how many mL you need to add to the full volume of beer, you will need to know three variables:

- 1. How many Gallons of beer you have*
- 2. Number of 4 oz. samples you removed for testing*
- 3. mL of the ingredient you added to the 4 oz. sample you like and want to proceed to add to the full batch.*

$[(\text{gallons of beer} \times 128) \div 4] \text{ minus (number of samples removed} \times 4)] \times \text{mL used} = \text{total mL needed}$

Joe's Tips for Adding Herbs and Spices

If aging the beer for an extended amount of time, try bumping up the quantity used to compensate for the inevitable fading of flavor.

Always measure and weigh the quantities used and record those values. Use the same device to perform measurements.

Be careful with aggressive spices that will take over a beer if not regulated or counterbalanced by other flavors. Good example of these are ginger or rosemary.

Strive for a blending of flavors. Beers are best when the individual flavors don't jump out at you. Mixtures add depth and complexity.

Hop lightly if using hops and consider them as a part of the whole herb and spice addition.

Pay attention to the effects that your herb and spice additions have on head retention. Note that some oils will reduce head quality or prevent head retention.

Juniper Eye Rye Ale (EX5)

3.3 lbs. Briess Rye Extract
3 lbs. Light Dry Malt Extract
1 lb. Flaked Rye
0.5 lb. Munich 6.5L Malt
0.5 lb. 6-Row Malt
0.5 lb. Carapils® Malt (last 15 min. of mash)

1.5 oz. Juniper Berries (crushed in mash)
1 tsp. Gypsum
1/2 tsp. Chalk
1/4 tsp. Calcium Chloride
1 tsp. Irish Moss
0.25 oz. Magnum Hop Pellets 14.7% (60 min.) 14.7 IBU
0.50 oz. Juniper Berries (60 min.) crushed
1.00 oz. Saaz Hop Pellets 3.4% (30 min.) 4.7 IBU
2.00 oz. Saaz Hop Pellets 3.4% (5 min.) 4.7 IBU
0.50 oz. Saaz Hop Pellets 3.4% (dryhop for 5 days)
1.50 oz. Juniper Berries (dryhop for 5 days) crushed

3/4 cups Corn Sugar for priming
1 package #1056 Wyeast or
#WLP001 White Labs Ale Yeast

O.G. 1.064 F.G. 1.016
IBU 24 ABV 6.0%

Use a 45 min. infusion mash at 150°F including malts and juniper berries. Add Carapils® last 15 min. Use a 60 min. boil, adding extracts, hops, juniper berries, and water treatments as directed.

For all-grain version, substitute 5 lbs. US 2-Row Malt, 3 lbs. Rye Malt, 1 lb. Flaked Rye, 0.25 lb. Caramel 40L Malt, for extracts. Add 1 lb. Rice Hulls. Use a 60 min. infusion mash at 150°F.

*Reprinted from 2014
Spring Newsletter ©2014, 2015 The Beverage People*