The Ultimate Guide to Crafting Flavorful Infusions Using Modernist and Traditional Techniques



# **Modernist Cooking Made Easy: Infusions**

#### By Jason Logsdon

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## **Forward: Why Infusions**



#### Infusions are all around us.

From tea and French press coffee to flavored vinegars and oils and even many traditional soda pops, infusions have always been a part of our daily lives. Now they are becoming more and more prevalent as many talented bartenders and chefs are creating custom infusions for use in both cocktails and food.

These infusions can be used in unique and novel ways but they all stem from the same process, transferring flavor from herbs, spices, and other flavoring agents into a liquid. Exploring this process allows you to create many wonderful dishes, from custom cocktails and personalized sodas to flavorful vinaigrettes and sauces.

There are many different ways to create infusions but several modernist techniques turn the process from a multi-day, or multimonth, process into one that can be accomplished in just a few hours or even minutes.

This book covers the basics of what an infusion actually is, as well as how to create them through both the traditional, time-based process and the modernist methods of using a whipping siphon, sous vide, and fat washing.

Creating infusions is fun and easy and you will master this process in no time by using the more than 100 recipes in this book spread across infused alcohols, vinegars, food, soda, and water. There are also more than 50 recipes focused on using the resulting infusions in cocktails, vinaigrettes, shrubs, sauces, foams, gels, and spheres.

# After reading this book you will be able to consistently create amazing infusions of your own with a minimal amount of effort.

The bulk of this book is the more than 150 recipes it contains. Feel free to skim the recipes looking for something that inspires you, or turn to a specific method section to learn how that method can be used to make infusions. I have provided images of many of the infusions and finished dishes but for larger, full color images you can go to:

MCMeasy.com/InfusionsGallery

To stay up to date with infusions, as well as modernist cooking, barrel aging, sous vide, and everything else I am working on please:

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If you enjoy this book I'd love it if you took the time to leave a review on Amazon.com, the reviews always help other people decide if they want to purchase the book or not.

## Most importantly of all, remember to have fun!



# **Understanding Infusions Section One**

### **Introduction to Infusions**



If you have any questions you can ask them in the Modernist Cooking Forums on my website. Just post your question and other cooks will weigh in with their answers.

You can find them on my website at:

MCMEasy.com/Forums

#### What Are Infusions

An infusion is both the process of, and the result of, extracting flavors from food into a liquid. This is usually done by soaking the food in the liquid for a long period of time. The liquid is typically water, alcohol, oil, or vinegar and can be hot or cold. The infusion process also works both ways, with the food taking on some of the flavors of the liquid.

Infusions originally were used for several purposes including preserving food over the winter. Fruits and berries could be placed in alcohol or vinegar and they would go much longer without spoiling. People noticed that in addition to preserving the food, the liquid the food was stored in took on the flavors of the items being preserved and tasted much better. Eventually infusions began to be a way to flavor liquids instead of just preserving foods.

#### **How Infusing Works**

There are two main components to infusions, the liquid or food to be infused, and the flavoring agent. The two components are combined together and the flavors from the two meld into each other, leaving an infused liquid or food behind.

A simple example is infusing mint into vodka. The mint is the flavoring agent and the vodka is the liquid to be infused. If you take a handful of mint leaves and cover them in vodka you have started the infusion process. As the mint sits in the vodka, the alcohol slowly leeches out the flavors, aromatics, and essential oils from the mint, resulting in a mint-flavored vodka.

The flavor of the liquid also penetrates the food being preserved in it. In the mint example, this isn't helpful due to the mild flavor of vodka, but some infusions result in both a flavored liquid and a flavored solid at the end, like ruminfused raisins or Luxardo maraschino cherries.



Infusions can be made with either hot or cold liquids. The higher the temperature, the faster the infusion is made, though typically the bitter components are pulled out faster as well. In an open system such as a pot on the stove, many of the aromatics can be released into the air due to the heat, where they are lost, resulting in a less flavorful infusion. Using a closed system such as a Ziploc bag or Mason jar prevents this from happening.

Temperature also greatly affects how quickly the various flavor compounds are pulled out of the flavoring agents. Different flavors are extracted at different temperatures so varying the temperature will have an impact on the final flavor profile. The longer the liquid is infused for, and the hotter it is, the stronger and more bitter the resulting infusion will be.

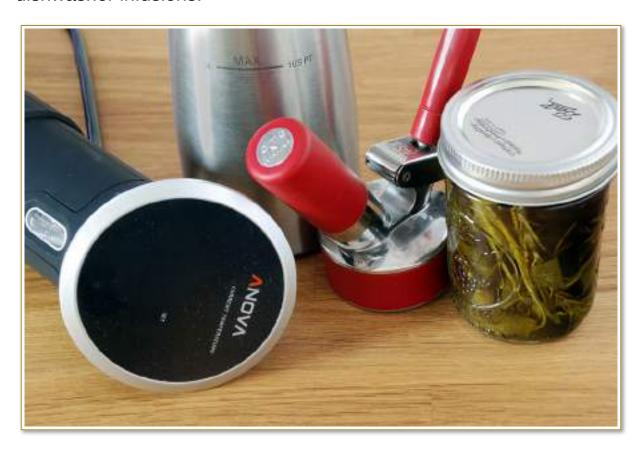
The speed of the infusion also depends on the type of liquid being infused. For example, high proof alcohol pulls flavor out much more quickly than oil does. In general, alcohol is the best infusion liquid because ethanol is a natural solvent and quickly pulls essential oils out of flavoring agents.

Another determining factor in infusions that is normally ignored is pressure. The higher the pressure used, and the faster it is released, the more quickly the infusion takes place and the more flavor is extracted. The whipping siphon is the main piece of equipment used to control the pressure, though there are other ways of controlling the pressure including a vacuum chamber, a chambered vacuum sealer, and instant marinating containers.

Infusing results in a more even distribution than muddling or mixing does. It also pulls out more nuanced flavors over time.

## **Infusing Methods**

There are many methods used to create infusions. In this book I focus on traditional infusions and infusions created using a sous vide machine or whipping siphon. I also touch on fat washing and dishwasher infusions.



In general, traditional infusions are more well rounded, take longer to make, and are more nuanced. Whipping siphon infusions take the shortest amount of time and tend to create less bitter, more aromatic and delicate infusions. Sous vide infusions fall in between and there is more control over the end flavor profile because of the variability in the temperature used during the infusion process.

I go into much more detail about the different infusion methods but in general they all produce great results. If you are comfortable with a certain method, feel free to use it for all your infusions. For each method I offer a "Converting Other Infusion Methods" section that

discusses, for example, how to tweak a sous vide recipe for use in a whipping siphon.

Don't feel restricted in the types of recipes you can make because of the equipment you have on hand. Almost every recipe can be lightly tweaked to work in a Mason jar on your counter, in a whipping siphon, or with a sous vide machine, the choice is yours!

## **Flavoring Agents**



Infusions can be made with almost any flavor you want. They range from classic infusions like rosemary oil and citrus vodka to crazy new infusions like cotton candy rum and bacon vinegar.

For infused liquids the flavoring agent will normally be herbs, spices, dried flowers, fruits, vegetables, roots, bark, berries or other strongly flavored items. For infused foods, the flavoring agent will be a combination of a strongly flavored liquid and any additional spices added.

Flavor is removed from the flavoring agents when the liquid comes into contact with them. Because of this, porous items work much better by providing more surface area for the liquid to contact.

Less porous items can be cut, ground, or cracked for more surface area. The size of the flavoring agent and how you prepare it can

dramatically affect the final flavor profile. If you are trying to replicate an infusion you made before, be sure to prepare the ingredients the same way.

There are several basic categories of flavoring agents and I'll look at each one in more depth. Some items can be hard to find locally but I've put together some online sources in the Other Resources section.

#### **Herbs And Flowers**

Herbs are one of the most commonly used flavoring agents. Depending on the ones used, they can impart a delicate, herbal flavor and aroma or a strong, deep flavor profile. Any edible herb or flower can be used in an infusion.



To use herbs, first wash and thoroughly dry them. Some herbs can benefit from a coarse chop or bruising of the leaves before they are added to the infusion.

Much like in cooking, the more delicate the herb, the less time it needs in the infusion and the lower the temperature that should be used to infuse it. Delicate herbs will lose much of their subtly of aroma and flavor if used in hot infusions. If other flavors are in the infusion, the delicate herbs can be added at the end of the process once most of the flavor has been extracted from the other flavoring agents.

Woody herbs like rosemary and thyme can typically stand up to hot infusions and extended infusing times.

The whipping siphon is very good at extracting the subtler flavors from herbs and leaving the bitter notes behind.

Typically only fresh herbs are used because of their greater nuance of flavor. If you can only find dried herbs, they will work but result in a slightly different flavor profile.

#### **How Much To Use**

The strength of the herbs and flowers being used will affect how much is needed. A good starting point is about a cup of herbs per 2 cups of liquid. You can then adjust this up or down depending on the strength of the herbs, the type of liquid being infused, and your desired strength of the resulting infusion.

## **Spices And Barks**



Other common flavoring agents are spices and barks. Cinnamon, coriander, peppercorns and other spices are key ingredients in many infusions. They contribute a depth of flavor and round out many of the background notes. Many barks are the flavor base for soda pops like root beer and birch beer, or contribute the bitter notes in bitters or tonic water.

Most spices can be used in hot or cold infusions and typically benefit from longer infusing times than most other ingredients. The longer and

hotter the infusion, the stronger and more bitter the resulting infusion will be.

Spices are usually used whole or lightly cracked. Powdered spices don't work great with traditional infusions but will usually be ok with a sous vide or whipping siphon infusion. Spices can also be toasted before being added to the infusion, this contributes a different flavor profile that may be desirable.

#### **How Much To Use**

The amount of spices and bark you use will vary greatly due to the various strengths of flavor they have. A good starting point is 1 to 2 tablespoons per cup of liquid for a strong flavor and 1 to 2 teaspoons for a mild, complementary flavor. For cinnamon I will use 1 to 2 sticks per cup for a strong flavor. Some spices, and especially bitter barks, will require a lot less to be effective.

## Fruits, Vegetables And Berries



Many fruits, vegetables, and berries make wonderful infusions. They can add a multitude of flavors from spicy or sweet to fruity or sour. They can be subtle and aromatic or bold and dominating.

Sometimes frozen fruits are just as good as fresh ones, especially when it comes to berries. They are frozen at their ripest point and are usually already cleaned.

Dried or dehydrated fruits have a much deeper, more concentrated flavor that will come through in the infusions. Dried fruits can be a great way to minimize the dilution of the infusion that usually occurs due to the water present in many fruits and berries.

When working with fruits or vegetables make sure they are clean and look fresh. The flavor of bruised or past-their-prime fruits and vegetables will come through, potentially ruining the infusion.

If they have a thick skin like melons, or bitter skin like citrus, remove and discard the skin, unless the recipe calls for the skin or zest.

For milder skins such as apples, pears, or cucumbers you can leave the skin on, just be sure to clean them first. Some fruits and vegetables, especially citrus, cucumbers, apples, and bell peppers can have a waxy coating on them so be sure to lightly scrub it off or peel them before using.

Some fruits and vegetables will benefit from being coarsely chopped or lightly smashed. This will help the infusion withdraw more flavor.

Citrus zest, the outer-most layer of the peel, has a lot of flavor and is a great addition to infusions. When using citrus peel, remove it from the fruit with a paring knife, peeler, or zester and try to limit the amount of white pith that comes with it.



When straining the ingredients there will be some liquid trapped in the flavoring agents. If you want a clearer infusion resist the urge to

squeeze the remaining liquid out or small particles will be released.

#### **How Much To Use**

For coarsely chopped fruits and vegetables, berries, or other larger items, a good place to start is with equal parts vegetables and infusing liquid by volume. For example, a pint of berries can be combined with a pint of alcohol or vinegar.

For dried or dehydrated fruits and vegetables, I generally start with about a cup of fruit for every two cups of infusing liquid.

If the citrus zest is the main ingredient then the zest from 2 to 4 fruits per cup of liquid will work well. You can use more or less from there if you want bolder or more subtle flavors.

#### **Teas And Blends**

One of the easiest ways to flavor infusions is to take advantage of various teas or dried fruit and flower blends. There are many online companies that sell great teas, I prefer Harney & Sons, who have a wide range of blends, including many with dried fruits and flowers in them. Using these teas in infusions is a great way to get bold and complex flavors with little effort of your own.

You can make the tea infusions either hot or cold, and the temperature will change the flavor profile of the resulting infusion.

#### **How Much To Use**

The amount of tea to use greatly depends on what the tea or blend is made up of. A good starting place is two tablespoons of tea for every cup of alcohol or vinegar. Once you see how that infusion turns out you can then tweak the amounts from there to make it stronger or weaker.

## Meats, Candies And Other Flavoring Agents

As I mentioned earlier, you can use almost anything in an infusion. In this book I have recipes with bacon, pepperoni, chocolate chip cookies and bonito flakes. If it is something normally safe to eat it should be safe to use in an infusion, especially a sous vide or whipping siphon one.

Hard candies are a favorite ingredient for infusions. I've seen recipes using candy canes, Skittles, fireballs, or Jolly Ranchers, but any hard candy would work. Just lightly smash the candies, add them to the liquid and infuse away.

Cured meats are another great way to add flavors. I love the salty, rich flavors of pepperoni, bacon, salami, and pastrami. Infusing them into vinegar or oil is a great way to use them at times when you just want a little hint of their flavors added to a dish. You can also infuse them into alcohol for many exciting drinks, including several fancy Bloody Mary variations. <u>Fat Washing</u> is also a great way to harness the flavors of meats.

Cookies are very porous and tend to infuse well. I use them often in milk infusions, either to drink straight, to use in cocktails, or to gel into panna cottas.

#### **How Much To Use**

It's hard to be specific because of the discrepancy in strength, but a good starting point is a quarter cup to full cup of flavoring agent per two cups of liquid used. The stronger the flavoring agent, the less of it you need to use.

## **Strongly Flavored Liquids**

While most infusions are extracting flavor from a food into a liquid, the process works both ways. If a strongly flavored liquid is sealed with a food, the food will take on the flavors of the liquid. This is used in many applications such as pickling, rum-infused raisins, and maraschino cherries.

#### **How Much To Use**

It's usually best to start with just enough liquid to easily cover the food you are infusing. In general, only a certain amount of liquid will be absorbed so having more liquid won't necessarily infuse the food more strongly. If you need a stronger infusion, it's better to concentrate the flavoring liquid or to make it stronger to start

## **Infusion Mediums**



The second main component to any infusion is the liquid being infused, known as the infusion medium. Most liquids can be infused but alcohol, vinegar, and oil are the most common.

#### **Alcohol**



Base spirits like vodka, whiskey, and rum are the most common alcohols to infuse but traditional infusions can be done on any spirit with a high alcohol percentage. Using the sous vide or whipping siphon methods allows even high-sugar liqueurs or quick-to-fade wines to be safely infused. The liquors retain their existing flavors so the bolder the liquor is, the less the flavoring agents will impact the final taste of the infusion.

Because of this, vodka or another neutral spirit such as Everclear are often used for infusions because they allow the full flavor of the flavoring agents to shine through. White rum and silver tequilas are also very popular because of their mild flavors, which lend well to many infusions.

Once you move away from the milder spirits, the flavoring agents need to complement the base spirit being used. Infusing bourbon and dark

rum can result in wonderful drinks but you should stick to ingredients that will work in tandem with their strong flavors, not against them. You will also need to use stronger flavoring agents because subtle notes an get lost in the deeply flavored spirits.

In traditional infusions, the proof of the liquor (the amount of alcohol present in it) affects the strength of the infusion. The higher the proof, the more flavor will be drawn out. Because of this, I tend to use overproof or 100+ proof spirits in traditional infusions. This effect is less pronounced in sous vide infusions and almost non-existent when using the whipping siphon.

My favorite application of infused alcohol is for use as components in cocktails. The flavors add great complexity in both alcohol-heavy drinks such as a Manhattan, Old Fashioned, or martini as well as lighter drinks like fizzes or sodas. You can also turn infused alcohols into liqueurs like limoncello through the addition of sugar.

Most alcohol infusions will last indefinitely in a dark cabinet, though the flavors will fade over time. Some sweeter or lower-proof alcohol infusions will start to go bad more quickly though and should be refrigerated. In general, the infusion will last as long as the alcohol would by itself.

#### Vinegar

Infused vinegars are a great way to add subtle flavors to vinaigrettes and sauces. Several infused vinegars are available in stores but they are often much more expensive than their plain counterparts. Making your own at home is quick and easy, plus much less expensive.



Any type of vinegar can be infused but I tend to shy away from the plain "white vinegar" because it can be harsh and very hard to mellow out. My favorite vinegars to infuse are white wine vinegar, apple cider vinegar, rice wine vinegar, and white balsamic vinegar. Occasionally I'll use darker vinegars such as red wine or balsamic, but you want to make sure the flavoring agents complement the base flavors of those vinegars.

I usually use my infused vinegars in vinaigrettes for salads or as a sauce on fish. They can also be used to make shrubs, tasty vinegar based drinks. The flavor of ceviches can also be increased through

the addition of infused vinegars. For more modernist dishes they can also be turned into airs or other light foams.

The infusion processes doesn't generally affect the storage time of the vinegar so most vinegar infusions will last for several months in a dark cabinet. The flavor will fade over time though.

#### Oil

Infusing oils with different flavors is a wonderful way to add nuance and flavor to dishes. Oils can be lightly flavored, only adding background notes, or they can be full of flavors and be the highlight of a dish.

When making oil infusions, be sure to thoroughly clean the flavoring agents before using them. The infusion process doesn't usually have any effect on bacteria that may be present so there is always a risk of botulism or other bacterial infections. After washing, dry the flavoring agents thoroughly to make sure no water is introduced or it can become rancid. If proper sterilization of the containers is used, infused oils can be stored in the cabinet for weeks, though for safety and flavor retention I tend to store them in the refrigerator.

The type of oil you infuse will greatly affect the final taste of your infusion. If you want the pure flavors of the infusion process to come through, then a neutral oil like grapeseed or canola oil is best. Stronger oils like olive oil and sesame oils will still impart many of the rich flavors they are known for, so any infusions with them should use complementary flavoring agents.

There are many uses for infused oils once you have created them. They can be used as finishing oils and drizzled over hot foods right before serving. They can be used as dipping oils for breads or vegetables or mixed into vinaigrettes. For more dramatic presentations, they can be turned into foams or spreads using a whipping siphon or maltodextrin.

Most oil infusions will last for several weeks in a dark cabinet, or longer if stored in the refrigerator. The flavors will fade over time though.

#### **Water And Juice**

You can infuse anything that is water based, including juices. Hot infusions, or infusions using the whipping siphon or sous vide are the most common way to work with water and juice because flavoring agents soaking in water or juice on the counter for weeks isn't typically safe.

Infused waters are becoming more and more popular as people look to replace sugary soda with something a little more flavorful than plain water and more exciting than the standard iced tea.

Various herbs, spices, fruits, and vegetables can be steeped in water, lending their flavors to the infusion.

Broth and dashi are very common water infusions. They normally use meat, chicken, seaweed, or vegetables to impart delicate flavors into the water. The water is then usually used as a base for sauces or soups.

More flavorful stocks can also be made through the infusion process. However, the traditional chicken or beef stock is usually made in such large quantities that the whipping siphon or sous vide machine tends to be less efficient, and less flavorful, than the stovetop or pressure cooker. Micro-stocks, small amounts of highly flavored stocks, can be made with the whipping siphon or sous vide.

Light, chilled soups can be made by infusing fruits, vegetables or berries into water. These can be served with garnishes as soups, or as the base for light sauces. Fruity infusions can also be used as a base for drinks or kid friendly "cocktails".

Juices can also be infused with spices and other flavoring agents. With a juicer you can extract the liquid from most fruits and vegetables. Many grocery stores have a wide variety of juices. These juices can then be paired with complementary flavoring agents to make all new creations.

All of these infused waters and juices can also be used in modernist ways. From foams and froths to gels and spheres, they can make wonderful additions to a variety of modernist dishes.

Most water and juice infusions will only last for a week or two and should be stored in the refrigerator.

#### **Bitters**

Bitters are a variation on alcohol infusions and are very flavorful additions to cocktails. They are not meant to be consumed alone and a typical cocktail will have only a few drops of bitters for every ounce of alcohol. They add deep base and nuanced flavors, and often times wonderful aromatics.



With the traditional infusion method bitters are a slow, 4-week-long process. Using sous vide or a whipping siphon speeds this process up to only a few hours.

Most bitters have some kind of bittering agent, such as gentian root, quassia root, cinchona bark or worm wood. They also have strong flavoring agents and aromatics.

I almost always use my bitters in cocktails but I also enjoy them in club soda for a simple afternoon drink.

Most bitters will last for several months in a dark cabinet due to their high alcohol content. The flavors will fade over time though.