



## Herbal root beers and root tonics

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—  
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Herbal Mixologist

## M.E.E.T The Herbs My herbal philosophy

- Medicine making is a medicine.
- Experience is the best teacher, make it something to remember and experience.
- Everyday practice your craft, your art.
- Taste is the teacher, the new active ingredients are taste, smell, sight.

Smoking Kava drink



# Herbal Mixology: The New Paradigm

The problem with herbal medicine  
 The problem with mixed drinks  
 Taste is the active ingredient  
 Alcohol as medicine?  
 Organoleptics: the way of senses  
 Herbs as medicine  
 The bitters



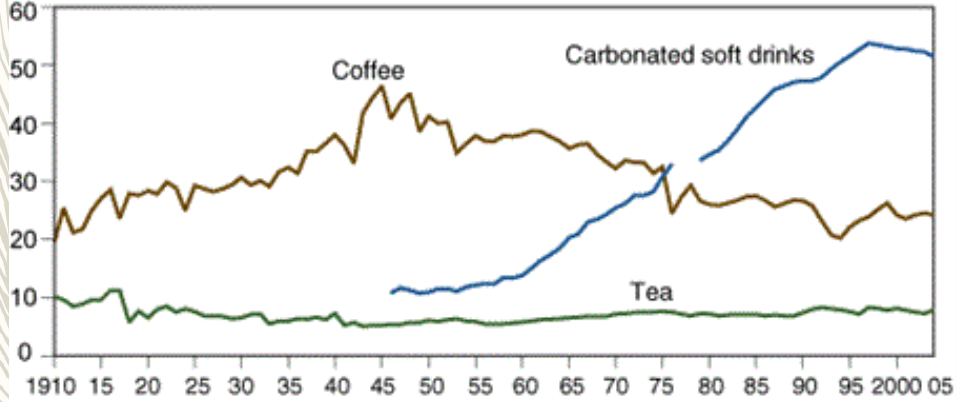
## Herbal Mixology: Defined

- **The power of herbal phytochemicals driven into the blood stream by alcohol and wrapped in an organoleptically rich sensual experience: This is the magic and power of Herbal Mixology.**
- The art and science of adding medicinal value and action to the world of tasty alcoholic drinks
- Bringing the value of medical tonics back to the roots of botanical medicine
- My path as an herbalist, naturopathic doctor
- Making medicine is medicine, DIY

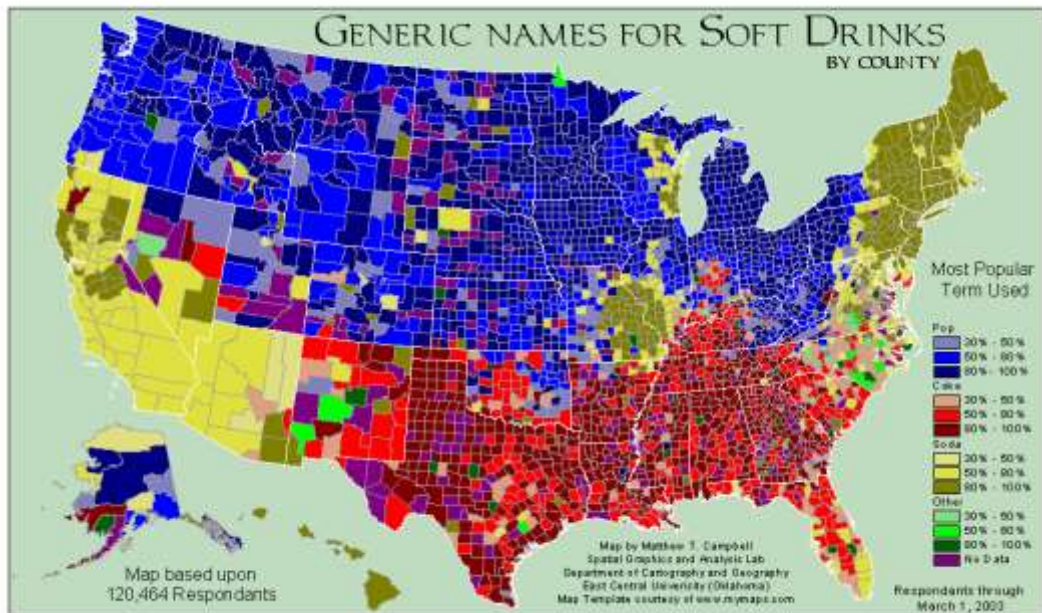


**Coffee availability in the United States peaked in 1946**

Gallons per person



Sources: USDA, Economic Research Service using data on carbonated soft drinks from the Bureau of the Census for 1947-77 and the Beverage Marketing Corporation for 1980-2005.



# History of soft drinks in USA: Coca Cola



## What are root beers?



## What are root beers?

Generally non alcoholic drinks made with:

- sugar syrups, root extracts and flavorings;
- carbonated water;
- often acids like phosphoric or citric acids.

Commercial drinks are generally not healthful.

Movement back to real root beers, low sugar, high in herbs, carbonated.



## History of Root Beer

- The flavor of these beverages may vary from typical North American versions. While no standard recipe exists, the primary ingredients in modern root beer are filtered water, sugar, and artificial sassafras flavoring, which complements other flavors.
- Common flavorings are vanilla, wintergreen, cherry bark, licorice root, sarsaparilla root, nutmeg, acacia, anise, molasses, cinnamon, sweet birch, and honey. Soybean protein is sometimes used to create a foamy quality, and caramel coloring is used to make the beverage brown.



## Herbs for Root Beers

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So many choices of herbs. Classic is *Sassafras* and birch bark or wintergreen.

Generally used are tonic roots with alterative and cleansing action.

**Base Ingredients:** *Sassafras* root, birch bark or wintergreen, licorice.

**Foaming agents:** *Smilax* (sarsaparilla), soapbark or Yucca root.

**Secondary spice herbs:** Dandelion, burdock, pipsissewa leaf, anise seed, fennel, cinnamon.

**Coloring agent:** natural or caramel coloring

Sugar or other sweetener



## Traditional Herbs for Root Beer

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### Base Herbs

- *Sassafras albidum* – sassafras roots and bark containing the aromatic oil safrole (or an artificial substitute)
- *Smilax regelii* – sarsaparilla, *Smilax glycyphylla* – sweet sarsaparilla
- *Piper auritum* – root beer plant or hoja santa
- *Glycyrrhiza glabra* – licorice (root)
- *Aralia nudicaulis* – wild sarsaparilla or "rabbit root"
- *Gaultheria procumbens* – wintergreen (leaves and berries)
- *Betula lenta* – sweet birch (sap/syrup/resin)
- *Betula nigra* – black birch (sap/syrup/resin)
- *Prunus serotina* – black cherry
- *Picea rubens* – red spruce, *Picea mariana* – black spruce, *Picea sitchensis* – Sitka spruce
- *Arctium lappa* – burdock (root)
- *Taraxacum officinale* – dandelion (root)

## Traditional Herbs for Root Beer

### Spices, flavor notes

- *Pimenta dioica* – allspice
- *Theobroma cacao* – chocolate
- *Trigonella foenum-graecum* – fenugreek
- *Myroxylon balsamum* – Tolu balsam
- *Abies balsamea* – balsam fir
- *Myristica fragrans* – nutmeg
- *Cinnamomum verum* – cinnamon (bark), *Cinnamomum aromaticum* – cassia (bark)
- *Syzygium aromaticum* – clove
- *Foeniculum vulgare* – fennel (seed)
- *Zingiber officinale* – ginger (stem/rhizome)
- *Illicium verum* – star anise, *Pimpinella anisum* – anise
- *Humulus lupulus* – hops
- *Mentha* species – mint

### Foaming Herbs

- *Quillaja saponaria* – soapbark
- *Manihot esculenta* – cassava, manioc, or yucca (root)
- *Smilax regelii* – sarsaparilla, *Smilax glycyphylla* – sweet sarsaparilla

## *Arctium lappa* (Burdock)





## *Arctium lappa* (Burdock)

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- Etymology: *Arctium* = bear, *lappa* = to seize
- Common name: Burdock, gobo root
- Family name: *Asteraceae* (Compositae) or sunflower family
- Medicinal parts: All parts have been used historically. Root and seeds considered the most potent.
- Dosage: 20-100 gtts TID. May be used long term.
- Collection: Seeds collected in the fall of the second year.
- Dig taproot in the fall or very early spring of the second to fourth year.
- Storage: Fresh tincture or dry for decoctions.



## *Arctium lappa* (Burdock)

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### **Chemical constituents:**

- *Inulin*: may comprise 20-40% of the root in the fall.
- *Sesquiterpene lactones*
- *Organic acids*: some have antibiotic actions.
- *Phytosteroids*: stigmasterol and phytosterol
- *Tannins*
- *Mucilage*
- *Flavonoids*
- *Alkaloids*
- *Vitamin A*
- *Calcium*
- *Sodium*
- Macrominerals are somewhat dependent on soil





## *Arctium lappa*: Actions

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- Alterative
- Diuretic
- Demulcent
- Diaphoretic
- Nervine
- Relaxant
- Anti-bacterial
- Anti-fungal
- Increases glucose tolerance
- GI stimulant
- Balances hormones



## *Arctium lappa*: Indications

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- Skin disorders
  - Seeds as well as root are indicated.
  - Use internally and externally.
- Menopause
- PMS
- Arthritis
- Gout
- Diabetes
- Chronic indigestion, esp. when secondary to liver stasis
- Lymphatic congestion (with chronic nodal swelling)
- Kidney weakness - with tendency towards stones
- UTI
- Cancer: Use all forms and gobo root as food
- Fever and sore throat
- Preeclampsia

## *Arctium lappa* (Burdock)

### Specific Indications (Felter):

- Feeble cutaneous circulation
- Dry, scaly skin eruptions
- Aphthous ulcers
- Recurrent boils and styes
- Urinary irritation
- Psoriasis



## Arctium: Dosing

### Pharmacy:

- Tea: 1 tsp. root/cup, 1 cup TID for several weeks (Children one glass daily).
- 1 tsp. seed/couple oz. water TID ic for several weeks. (Children 1/2 tsp. seed/ 2 oz. water.) These decoctions can be used undiluted as a poultice.
- 1:5 tincture- 2-4 ml TID

**Contraindications:** Brinker speculates that excessive doses be avoided in pregnancy due to empirical oxytocic effects and uterine stimulant effects.

## *Chimaphila umbellata*: Pipsissewa

- **Family:** *Ericaceae*
- **Common name:** Pipsissewa, some sources will also refer to this prince's pine. *Chimaphila* means "winter love."
- It may be the secret ingredient in Pepsi.
- **Habitat:** Europe, Asia, Siberia, N. and S. America. Protected species in Germany.
- Loves moist soils



I am the secret ingredient in a sugary cola drink,  
You stole my name  
A Pipsi like you

**PEPSI**



## *Chimaphila umbellata*: Pipsissewa

**Medicinal actions:** astringent, alterative, tonic, diuretic, antiseptic

“The principal action of *Chimaphila* is upon the kidneys, to improve water excretion, the renal tract generally, to remove congealed fluids such as pus, catarrh and sediment in the urine, **and upon the lymphatic/glandular system, to remove stagnant lymph and swollen glands.** It acts particularly strongly upon the prostate, in which these two systems are combined.”

Matt Wood, Book of Herbal Wisdom, 1997



*Chimaphila umbellata*: upper part of flowering stem.

## Chaga Mushroom: *Inonotus obliquus*

- *Inonotus obliquus*, commonly known as **chaga mushroom**, is a fungus in the family *Hymenochaetaceae*.
- This woody mushroom appears as a piece of dark charcoal. Commonly grows on birch trees in Northern forests of Canada and Alaska.
- The growth is technically called a sclerotia or mycelium mass, not a fruiting body.
- The black color is from the high amounts of the black pigment, melanin.
- It is great for Root beer because it naturally gives a dark color and mild flavor.
- Takes the place of caramel color



## Dandelion: Earth Nail



## *Taraxacum officinale*

**Family:** Asteraceae

**Habitat:** Found throughout most of the world, particularly the Northern hemisphere

**Part Used:** Root and/or leaf

**Taste:** Bitter, salty, sweet

**Temperature:** Cold

**Channels:** Liver, gallbladder, spleen, bladder

**Collection:** The roots are best collected between June and August when they are at their most bitter. Split longitudinally before drying. The young leaves may be collected at any time, although those collected in the spring are less bitter.



## *Taraxacum officinale*



**Actions:** Diuretic (leaf), hepatorestorative, hepatoprotective, choloretic, cholagogue, anti-inflammatory, anti-rheumatic, gentle laxative, alterative, anti-hypertensive, stomachic, tonic, bitter.

## *Taraxacum officinale*

- Root is for liver, leaves are for kidney.
- Leaves are a potassium-sparing diuretic and contain potassium. Useful in hypertension.
- Root is a choloretic and cholagogue. Useful for liver and biliary problems of all kinds.



## *Taraxacum officinale*

### Preparations & Dosage:

- Decoction: put 1-3 tsp of the root into one cup of water, decoct for 10-15 minutes.
- If using leaves, infuse rather than decoct for 10-15 minutes. This should be drunk three times a day.
- The leaves may also be eaten raw in salads or steamed as a spring green.
- Juice of the pureed leaves; sig up to 20 ml/ day
- Tincture (1:5 25%): 3-10ml of the tincture up to qid. Root and/or leaf.
- Fluid extract (1:1 30%): 2-8ml TID

## Birch bark: *Betula lenta*

***Betula lenta*** (sweet birch, cherry birch, mahogany birch, or spice birch) is a species of birch native to the Eastern United States.

The sweet birch twigs and branches are a natural source of **wintergreen oil**.

**Classic root beer is birch bark and Sassafras root bark!**

Generally, dried bark from herb shops is useless for root beer.

Best is fresh spring twigs.



## *Smilax officinalis* and other species: Sarsaparilla

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**Parts used:** Roots, rhizome

**Sources:** Mexican *S. medica*; Ecuadorian *S. febrifuga*; Jamacian *S. regelii*

**Constituents:** Steroidal saponins (smilagenin, sarsasapogenin, sarsaparilloside); Glycoside saponins [parillin (sarsaponin), smilasaponin (smilacin)]; B-sitosterol, stigmasterol glycosides; Oxalic acid, Fatty acids, Iodine, Mineral salts, Starch

**Medicinal actions:** Alterative, antiinflammatory, antipruritic, antiseptic



## *Smilax* species: medicinal uses

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*Smilax spp.* have been used throughout the last three centuries. Its reputation has ranged from granting inner strength and virility to curing syphilis. It has also been used as a flavoring agent in beverages. Current popular use by body builders for its hormonal influence is somewhat unfounded. *Smilax* does contain steroidal molecules, some of which may be metabolized into testosterone or act as phyto-testosterone, however there is no evidence to suggest that the plant contains testosterone or progesterone.



## *Sassafras albidum*

**Parts used:** root bark, collected in autumn

**Constituents:**

Volatile oil (6-9%): chief components safrole (up to 90%), 5-methoxyeugenol (up to 30%), asarone (up to 18%), camphor (up to 5%)

Isoquinoline alkaloids: of the aporphine and reticuline type (less than 0.1%)

Lignans: sesamin, desmethoxyaschantin

Tannins; Sitosterol and other sterols

Alkaloids: aporphine, benzyloisoquinoline derivatives

Resin



*PDR for Herbal Medicines.* Medical Economics Company Inc., Montvale, NJ. 2001

## *Sassafras albidum*

**Medicinal actions:** Carminative, diaphoretic, antiseptic, antirheumatic, alterative

**Traditional Medicinal Use:**

*Sassafras* has been used for hundreds of years as a medicinal agent for chronic diseases and *Sassafras* was considered to be an alterative with efficacy in chronic inflammatory disorders of the skin and joints.

Cook added that *Sassafras* is an aromatic relaxant and stimulant with the warm infusion being a fair stimulating diaphoretic and nervine. He described the oil as among the best of the nervine stimulants and relaxants.

Cook, WM. "The Physio-Medical Dispensatory: A Treatise on Therapeutics, Materia Medica and Pharmacy." Eclectic Medical Publications, Sandy, OR 1985

## *Sassafras albidum*

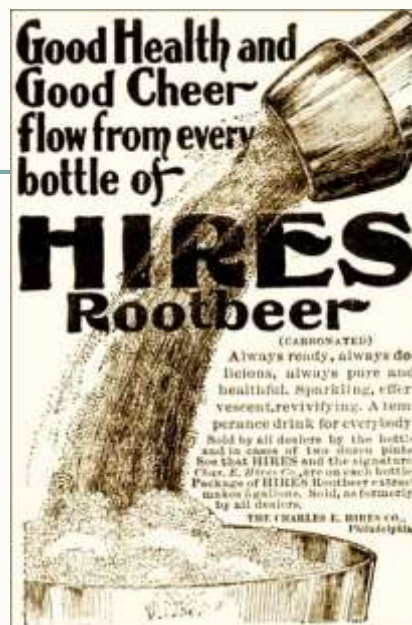
**Pharmacy:** It is recommended to use this plant externally only. Internal: 2.5 g (3/4 tsp.) dried root bark/cup/day; hot infusion for 10 min.; strain and drink.

**Contraindications:** *Sassafras* should be avoided in early pregnancy due to emmenagogue properties and prolonged use (daily for a year) of forms containing the essential oil component should be avoided.

**Toxicity:** In large doses and/or prolonged use, lowered body temperature, exhaustion, tachycardia, and collapse may occur.

Safrole inhibits hepatic microsomal enzyme function, prolonging hexobarbital induced necrosis in animal studies.

Brinker, F. *Herb Contraindications and Drug Interactions*. Eclectic Medical Publications, Sandy, OR 1998. p. 119



## Fleishmann's Root Beer (1915)

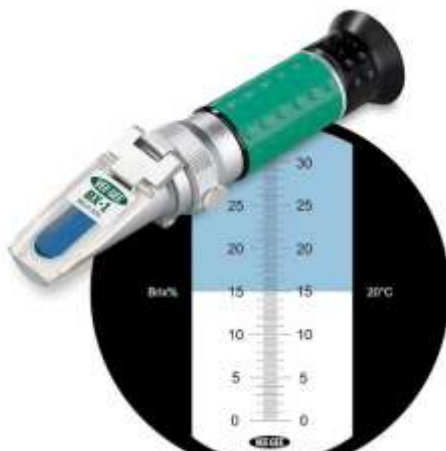
*This vintage carbonated beverage recipe from 1915:*

1 cake compressed yeast; 5 pounds sugar; 2 ounces sassafras root bark; 1 ounce hops or ginger root; 2 ounces juniper berries; 4 gallons water; 1 ounce dandelion root; 2 ounces wintergreen leaf.

Wash roots well in cold water. Add juniper berries (crushed) and hops. Pour 8 quarts boiling water over root mixture and boil slowly 20 minutes. Strain through flannel bag. Add sugar and remaining 8 quarts water. Allow to stand until lukewarm.

Dissolve yeast in a little cool water. Add to root liquid. Stir well. Let settle and then strain again and bottle. Cork tightly. Keep in a warm room 5 to 6 hours, and then store in a cool place. Put on ice as required for use.

## Using a Brix meter



- **Degrees Brix** (symbol °Bx) is the sugar content of an aqueous solution. One degree Brix is 1 gram of sucrose in 100 grams of solution and represents the strength of the solution as percentage by mass.
- If the solution contains dissolved solids other than pure sucrose, then the °Bx only approximates the dissolved solid content.
- The °Bx is traditionally used in the wine, sugar, carbonated beverage, fruit juice, and honey industries.
- With Sodas, less than 10 is about 10% sugar,
- Traditional soda is a brix of 16

## Why do we love carbonation?

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- Bubbles add a liveliness and fun
- Previously found only in brewing
- Make mild flavors more bold
- Mix well with sharp alcohol
- Taste is prickly, like salty and sour at the same time

## Health benefits of carbonated water

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“The effects of carbonated beverages on the gastrointestinal tract have been poorly investigated. Therefore, this study aims to assess the effect of carbonated water intake in patients with functional dyspepsia and constipation. Twenty-one patients with dyspepsia and secondary constipation were randomized into two groups in a double-blind fashion. One group (10 subjects) drank carbonated water and the other (11 subjects) tap water for almost 15 days.

“Patients were evaluated for dyspepsia and constipation scores, and underwent a satiety test by a liquid meal, radionuclide gastric emptying, sonographic gallbladder emptying and colonic transit time, using radio-opaque markers.

Cuomo, R. et. al. 2002. Effects of carbonated water on functional dyspepsia and constipation. Eur J Gastroenterol Hepatol. 14(9):991-9.



## Health benefits of carbonated water

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“The dyspepsia score was significantly reduced with carbonated water (before = 7.9 +/- 2.8 after = 5.4 +/- 1.7; 0.05) and remained unmodified after tap water (9.7 +/- 5.3 9.9 +/- 4.0). The constipation score also decreased significantly ( 0.05) after carbonated water (16.0 +/- 3.9 12.1 +/- 4.4; 0.05) and was not significantly different with tap water (14.7 +/- 5.1 13.7 +/- 4.7).

“Satiety was significantly reduced with carbonated water (before = 447 +/- 146 kcal after = 590 +/- 245; 0.01). Gallbladder emptying (delta percent contraction) was significantly improved only with carbonated water (39.9 +/- 16.1% 53.6 +/- 16.7%; 0.01).

Cuomo, R. et. al. 2002. Effects of carbonated water on functional dyspepsia and constipation. Eur J Gastroenterol Hepatol. 14(9):991-9.



## Health benefits of carbonated water

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“In patients complaining of functional dyspepsia and constipation, carbonated water decreases satiety and improves dyspepsia, constipation and gallbladder emptying.”

Cuomo, R. et. al. 2002. Effects of carbonated water on functional dyspepsia and constipation. Eur J Gastroenterol Hepatol. 14(9):991-9.



## Are mineral waters safe long term?

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“...[I]n 2001, the Birmingham team examined seven different brands of mineral water, again pouring them over extracted teeth to see what happened. They found sparkling waters had a pH of between 5 and 6 (so not as acidic as some cola drinks which can be as high as 2.5), compared with still water, which was neutral at 7. In other words, they are a weak acid, as suspected.

“So if you want a change from plain old water, then although it’s mildly acidic, so far there isn’t strong evidence to suggest that it’s harmful to your bones, your stomach or your teeth. But if you want to play safe and keep it away from your teeth, when you answer the question ‘still or sparkling’ perhaps you should also ask for a straw.”

Hammond, C. 2015. Is sparkling water really bad for you? BBC Future.



## Mineral water vs Seltzer water

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Generally the terms are unclear and confusing.

**Sparkling mineral water** can come from natural springs and contains minerals at various amounts. Carbonation may be natural or added.

**Seltzer water** is plain water that has been artificially carbonated. This water contains no sodium salts, was originally introduced as a less-expensive alternative to sparkling mineral water.

## Club Soda and Tonic Water

**Seltzer water and club soda** are very similar, but seltzer is generally naturally sourced and club soda has added minerals such as potassium bicarbonate and potassium sulfate.

**Tonic water** is a bitter drink made by adding quinine. Many tonic waters contain calories from high fructose corn syrup or other sugars.

## Tonic water labels



## Carbonation basics

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### Remember the three Cs:

**Clarity:** You will have problems carbonating anything that is not clear, no solids or sediment because they cause nucleation sites.

**Coldness:** the closer to freezing the more CO<sub>2</sub> they will hold. Heat drives the bubbles out rapidly.

**Composition:** When mixing, lower alcohol will hold more CO<sub>2</sub>, higher does not. Avoid lots of natural foaming agents like eggs, etc.

- Increase the surface area to get more CO<sub>2</sub> into liquid or shake frequently.



## Carbonation by Whipper

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Use 500 mL Whipper by ISI, which is best-made brand.  
(Also available in 1000 mL size.)

Do not over fill; there is a line on the inside.

Do not over pressurize; one or two cartridges max

Shake well and keep cold.

You must be 21 to buy NO<sub>2</sub> (nitrous oxide is laughing gas.)

Anyone can buy CO<sub>2</sub>.

Clean and dry well.

Consider buying the extraction kit for making instant tinctures.





## Carbonation by soda stream

- Brings CO<sub>2</sub> to everyone
- Uses small CO<sub>2</sub> bottles
- Can be used for more than soda
- Do not use anything besides water unless you know what you are doing.
- Under \$100
- For water, follow instructions and make sure water is cold.
- For alcoholic drinks, don't add more than 11 oz or 165 mL to prevent foaming.
- Pressurize and release many times to get a good blend.



## How much CO<sub>2</sub> in drinks

For practice, weigh the bottle with cold water and no top before adding CO<sub>2</sub>

Add 3-5 grams per liter for average drink

Weigh after charging and see the difference.

Keep near freezing for best retention.  
Pour into clean glass

Style Carbonation Ranges			
Style	Vol CO <sub>2</sub>	Style	Vol CO <sub>2</sub>
American Ales	2.4 - 2.8	American Lagers	2.5 - 2.8
British/Scottish/Irish Ales	1.2 - 2.2	European Lagers	2.3 - 2.7
European Ales	2.2 - 2.7	Wheat Beers	3.0 - 4.0
Belgian Ales	1.9 - 2.5	Belgian Wit	2.1 - 2.6
Belgian Lambics	2.5 - 4.5		
Soda	6 + *	Sparkling Fruit Juice	3 + *
Real Beer	5 + *	Sparkling Mead	3.5 - 6 + *
Cider	1 - 4	Sparkling Wine	3.7 - 6 + *
Water	4 - 6		

\* Never carbonate above the pressure your container can safely handle!



## Rosemary Gladstar's root beer

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**Ingredients:**

- 3 parts *Sassafras* bark
- 3 parts sarsaparilla root
- 2 parts birch bark
- 1 part dandelion root
- 1 part licorice root
- 1 part fennel seed
- 8-10 anise star pods (handful)
- 1/4 part ginger root (cut and sifted, not powdered)
- 2 parts Burdock root
- 1/2 teaspoons *Stevia* leaf (powdered)

**Directions:**

- Bring the herbs to a boil in water and simmer 20 minutes
- strain and add tea in equal parts to bubbly water.

Favorite Homemade Root Beer. Learning Herbs. <http://learningherbs.com/remedies-recipes/homemade-root-beer>



## Traditional root beer with *Sassafras* and other roots

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**Ingredients:**

- 10 liters water
- 40g powdered chaga
- 100g Jamaican sarsaparilla
- 100g birch bark
- 100g *Sassafras*
- 680g organic cane sugar
- 100g blond coconut sugar
- 4 TB molasses
- 3 TB vanilla
- 12 drops wintergreen essential oil
- Brix about 6



## Dandelion / Burdock Root Beer

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### Ingredients

- 600 mL cold water.
- 1 tsp ground burdock root.
- 1 tsp ground dandelion root.
- 2 cm piece ginger, sliced.
- 1 whole star anise, crushed.
- 1/2 tsp citric acid.
- 300 g granulated sugar.
- soda water.

### Directions:

- Make a decoction of burdock and Dandelion by simmering roots for 2 hours.
- Strain and add sugar and simmer until completely dissolved.
- Store in canning jars, refrigerated.
- Add 1-3 TB to 8oz of bubbly water for refreshing drink.