

METHOD FOR MELLOWING BEVERAGES AND A DEVICE APPLIED IN THE METHOD

1. Field of the Invention

The present invention relates to a method for mellowing beverages, and more particularly to a method that mellows the beverages by oxidation and magnetization. A device applied in the method is also disclosed.

2. Description of Related Art

Organisms are all constructed from anaerobic cells, aerobic cells or coexisting tissues thereof. The anaerobic cells and the aerobic cells grow according to magnetic induction and magnetic field inside themselves. Take aquatic microorganisms in swamps for example, the anaerobic microorganisms exist in sludge on the bottom of the swamp. On the contrary, the aerobic microorganisms exist near the surface of the swamp, where there is more oxygen to sustain life. If the oxygen content changes, the aquatic microorganisms will suffer insufficient growth or even die.

On this broad earth, various creatures live in different environmental conditions in different latitudes, heights or geologies. Therefore, the same living matter such as agricultural plants have different growth situations in different places because the earth is not even in climate or other natural conditions. For fruits grown in an oxygen-insufficient environment, the fruits have less fragrance than other fruits grown in a normal environment. If a single fruit is observed in a microcosm, the fruit has uneven growth wherein some parts have matured while others have not. The parts not mature usually contain a great quantity of tannin that causes astringent tastes. Therefore,

beverages made from the fruits have greatly different tastes relative to the places of origin and the particular year.

Additionally, during manufacturing processes of the beverages, some organic materials are generated under an oxygen-deficient atmosphere. The organic materials cause the flavour changes and are pernicious to human health. In order to overcome the astringent taste in the beverages made from the fruits, the manufacturers usually add a lot of sugar to the beverages to cover the unpleasant astringent taste and flavour changes but the sugars increase the calories of the beverages, which can not be accepted by consumers.

The present invention has arisen to mitigate or obviate the disadvantages of the beverages in taste.

The main objective of the present invention is to provide a method for mellowing the beverages, which eliminates by oxidization organic materials such as tannins from the beverages.

The other main objective of the present invention is to provide a device for carrying out the method.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

IN THE DRAWINGS

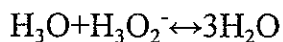
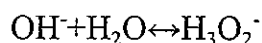
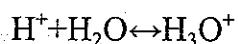
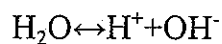
Fig. 1 is a series of schematically illustrating blocks in accordance with the present invention; and

Fig. 2 is a schematically cross-sectional side view of a device for carrying out the method in the present invention.

With reference to Fig. 1, a method for mellowing beverages in accordance with the present invention comprises acts of: obtaining beverages; operationally pre-heating the beverages; strong-oxidizing with ozone the beverages; weak-oxidizing with ozone and electric voltage the beverages; and magnetizing the beverages. Additionally, an act of heating is carried out at the same time as the magnetizing.

Theories of the acts are illustrated as the following:

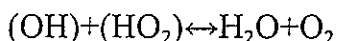
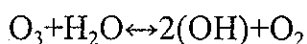
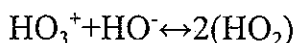
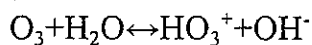
1. Weak oxidization: water in the beverages has multiple balance equations in the form of complex compounds between positive and negative ions when an electromagnetic field is applied to provide the water energy. Adding oxygen into the beverage accelerates the aging and purification of the beverage. The balance equations of the complex ions of water are shown as the following:



Impurities in the beverages can be oxidized by a weak voltage difference between the beverage inside a piping system and electromagnetic materials outside the piping system. This purification is particularly applied to some beverages having good quality or containing low levels of tannin.

2. Strong-oxidization: adding ozone into the beverages, the water in the beverages further has several balance equations in the form of complex compounds between positive and negative ions. The ozone interacts with

water molecules to generate free radicals (OH) that significantly oxidize and purify the impurities in the beverages. The balance equations of the complex ions of water after adding the ozone are shown as the following:



The free radicals of (OH) are an extremely strong oxidant, only existing briefly for within 3/1000 second, and then they react with other ions to become oxygen. The generated oxygen further proceeds the weak oxidization without generating pernicious materials. This purification is particularly applied to some beverages having poor quality of having much impurities or containing high levels of tannin.

3. Magnetization: electrical and magnetic forces are interchangeable energy resources. Applying the electricity to electromagnetic materials generates magnetic force lines to enter the piping system to vibrate and divide aggregated water molecules into single ones.

The beverages substantially contain proteins, salts or trace elements, and those elements undergo physical and chemical changes by applying the magnetic force lines. Additionally, currents occurring from magnetic fields or voltage differences cause hydration in the beverages to accelerate the oxidization of the organic materials (impurities).

4. Purification time and temperature: no matter whether chemical changes or physical changes are implemented, time and temperature have

great effect in improving the processing of the beverages. Generally, a higher temperature magnifies the current of metal tubes in the piping system to accelerate weak deoxidization. At the same time, ozone also decomposes to accelerate the strong deoxidization. When the operational temperature is about 70°C, the ozone will be decomposed completely. The purification time is varied with different raw materials. The temperature has a greater influence than that of the time and is usually settled according to the characteristics of the raw materials. The purification time means the specific time of the raw material flows in the metal pipes.

With regard to the device of the method, as shown in Fig. 2, the device comprises a body (10), a beverage container (20), a winding metal tube (11), a magnetic material (12) packed inside the body (10), a heater (13) and an optional air agitator (14).

The body (10) is hollow and has a top, a bottom, two sides, and an inner space. The winding metal tube (11) is received inside the body (10) and has an inlet (110) attached to the top of the body (10) and an outlet (111) secured on one side of the body (10) to communicate with outside.

The body (10) further has multiple inlets and outlets for filling the body (10) with the magnetic material (12) and air. As shown in Fig. 2, a magnetic material inlet (16) is formed on one side near the top of the body (10) and a magnetic material outlet (17) is formed on the bottom of the body (10). Additionally, an air outlet (15) is formed on the other side opposite of the magnetic material inlet (16) on the body (10). The winding metal tube (11) is the piping system for transporting the beverage through the body (10).

The magnetic material (12) is packed into the body (10) and around the winding metal tube (11).

The beverage container (20) is a chamber formed on the top of the body (10) for storing the beverages. Another function of the beverage container (20) is to oxidize the beverages. Therefore, the beverage container (20) further has multiple inlets and outlets for injecting oxidant gases into the beverage container (20). As shown in Fig. 2, the beverage container (20) has a beverage inlet (24), an oxygen inlet (22) and an ozone inlet (23) formed on a top of the beverage container (20), wherein the ozone inlet (23) connects to an ozone supplier (230) via a pipe. A gas outlet (21) is also formed on the top of the beverage container (20) to drain excess gases out of the beverage container (20). The beverage inlet (24) is connected to a tank (25) containing raw material of the beverages to guide the beverages into the beverage container (20). Additionally, a pre-heater (240) is mounted between the tank (25) and the beverage container (20) to heat the beverages to a certain temperature before oxidization.

The magnetic material (12) is packed into the body (10) via the magnetic material inlet (16) and then drawn out via the magnetic outlet (17) after the magnetic material (12) loses its magnetic force. Additionally, the optional air agitator (14) is attached inside the body (10) near the bottom and connects to an air pump (140) outside the body (10). The air agitator (14) is composed of a pipe and multiple nozzles formed on the pipe to inject air into the body (10) to stir the magnetic material. The heater (13) is also attached inside the body (10) near the bottom to keep the beverages at the desired

temperature.

Because the magnetic force line makes ions in the beverages generate gentle voltage and current, the body (10) further has an isolating layer (not shown) formed on an inner surface around the body (10) to avoid emitting the electricity.

When the device operates, the raw material of the beverages is drawn to the beverage container (20) and pre-heated to a desired temperature before entering the beverage container (20). In the beverage container (20), oxygen is conducted into the beverage container (20) to make the beverage weakly oxidized. Selectively, the ozone is further induced into the beverage container (20) from the ozone supplier (23) to make the beverage strongly oxidized. By using oxidization, organic impurities and tannic elements are decomposed and eliminated in the beverages.

After oxidization, the beverage is drained out from the beverage container (20) to enter the winding metal tube (11) inside the body (10). The beverages are magnetized in the winding metal tube (11) because of magnetic force lines created by the magnetic material (12) around the winding metal tube (11).

Thus, the beverages are mellowed and the astringent taste is removed because the tannic is oxidized. Other organic impurities caused by the oxygen-deficient atmosphere are also oxidized. The fructose, acid, alcohol, and ester molecules are evenly distributed in the magnetized single water molecules.

Some ionizable materials such as proteins and salts can be

magnetized to cause more oxidization and hydrolyzation, i.e., the electrolysis in voltage and current caused by the magnetic force.

Additionally, the magnetic force lines also disturb natural magnetic induction of bacteria in the beverages. Therefore, the bacteria can not propagate or may even be killed by breaking the deoxyribonucleic acid (DNA) or deoxyribonuclease (DNase) of the bacteria in the oxidization of the strong free radical OH. After oxidization, the beverages can be preserved for period of time longer than usual.

Moreover, the starch and fat are also decomposed to become small molecule glucose and the dissolvable tannic materials are oxidized to become organic acid. The astringent taste is eliminated because the tannic no longer exists in the beverages and glucose increases the sweet flavor of the beverages. Moreover, the organic acid further combines with the alcohol to achieve ester to mellow the beverage.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

CLAIMS:

1. A method for mellowing beverages comprising acts of
obtaining beverages;
oxidizing the beverages to remove tannic and organic impurities
inside the beverage; and
magnetizing the beverage to accelerate hydrolysis of ionizable
materials in the beverage.
2. The method as claimed in claim 1, wherein the method further
comprises act of pre-heating the beverages before the act of oxidizing the
beverage.
3. The method as claimed in claim 1, wherein oxidizing act is to use
ozone to strong-oxidize the beverages.
4. The method as claimed in claim 2, wherein oxidizing act is to use
ozone to strong-oxidize the beverages.
5. The method as claimed in claim 1, wherein the oxidizing act is to
use oxygen and electricity to weak-oxide the beverages.
6. The method as claimed in claim 4, wherein the oxidizing act
further uses oxygen and electricity to weak-oxidize the beverages.
7. The method as claimed in claim 6, wherein the method further
comprises acts of heating simultaneous with the magnetizing act.
8. A device applied in the method in claim 1, the device comprising:
a hollow body (10) having a top, a bottom, two sides, and an inner
surface and containing magnetic material (12) inside the body (10);
a beverage container (20) mounted on the top of the body (10) and

having a top, multiple gas inlets, gas outlets, and a beverage inlet connected to a raw material tank (25);

a winding metal tube (11) received inside the body (10) and having an inlet (110) extending to the top of the body (10) to communicate to the beverage container (20) and an outlet (111) secured on one side of the body (10) to communicate to outside.

9. The device as claimed in claim 8, wherein the body (10) further has

a magnetic material inlet (16) formed on one side near the top of the body (10); and

a magnetic material outlet (17) formed on the bottom of the body (10);

wherein, the beverage container (20) has

an oxygen inlet (22) formed on the top of the beverage container;

an ozone inlet (23) formed on the top of the beverage container (20);

and

a gas outlet (21) formed on the top of the beverage container (20) to drain excess gases out of the beverage container (20).

10. The device as claimed in claim 9, wherein the device further has a pre-heater (240) mounted between the tank (25) and the beverage container (20);

an air agitator (14) attached inside the body (10) near the bottom and connecting to an air pump (140) outside the body (10), wherein the air agitator (14) is composed of a pipe and multiple nozzles formed on the pipe

to inject air into the body (10); and

a heater (13) attached near the bottom inside the body (10).