## FASCICULE DE BREVET D'INVENTION

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54 Titre : Aroma and/or flavor imparting composition, foodstuff, and production method for said foodstuff.

## Abrégé :

The problem of the present invention is to provide a composition capable of imparting, to food or drink, a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has, a food or drink having a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has, and a production method of the food or drink. A method of producing a food or drink, including a step of adding 1-octen-3-ol and/or 1- octen-3-one, lower fatty acid, and methional to the food or drink such that the concentration of 1- octen-3-ol and/or 1-octen-3-one to be added is not less than 0.00006 weight ppm and not more than 0.065 weight ppm , the concentration of lower fatty acid to be added is not less than 0.0006 weight ppm and not more than 0.7 weight ppm , and the concentration of methional to be added is not less than 0.2 weight ppm and not more than 230 weight ppm.

## DESCRIPTION

Title of the Invention: AROMA AND/OR FLAVOR IMPARTING COMPOSITION, FOODSTUFF, AND PRODUCTION METHOD FOR SAID FOODSTUFF

## Technical Field

The present Invention relates to a composition capable of imparting, to food or drink, a preferable aroma and/or a flavor that brewed or fermented food or seafood extract Intrinsically has.

In addition, it relates to food and drink having a preferable aroma anid/or a flavor that brewed or fermented food or seafood extract intrinsically has, and a production method of the food or drink.

Background Art
Brewed or fermented food and seafood extracts such as bonito stock, soy sauce, miso, fish sauce, oyster extract and the like are used for cooking in countries all over the world as the base of meal. However, yeast extract, which is a representative savory seasoning, has a problem of easy production of off-flavor when added, and the development of a composition capable of Imparting the aroma and/or flavor that brewed or fermented food or seafood extract intrinsically has to food and drink, as well as a method of Imparting the aroma and/or flavor are awaited.

On the other hand, while there are reports on the attempts to Improve the flavor of fish sauce and soy sauce by analyzing the flavor components contained in fish sauce and soy sauce, treating to reduce unpreferable components among such components and the like (patent documents 1-3), a method of imparting a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has to food and drink is not described at all. [Document List] [patent documents]
patent document 1: JP-A-11-123064
patent document 2: JP-A-2004-187561
patent document 3: JP-A-2008-212051
SUMMARY OF THE INVENTION
Problems to be Solved by the Invention
With the above-mentioned background, an object of the present invention is to provide a composition capable of Imparting, to food or drink, a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has.

An object of the present invention is to provide food and drink having a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has, and a production

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method of the food or drink.
Means of Solving the Problems
The present inventor has conducted intensive studies of the aforementioned problems and surprisingly found that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has can be imparted to food or drink without producing an off-flavor, by adding 1-octen-3-ol and/or 1-octen-3-one, iower fatty acids and methional at particular concentrations to the food or drink. The present inventor has also found that stock feeling and mature feeling can also be imparted along with the aroma and/or flavor.

The present inventor has further studied based on these findings and completed the present invention.

Accordingly, the present invention provides the foilowing.
[1] A method of producing a food or drink, comprising a step of adding 1-octen-3-ol and/or 1-octen-3-one, iower fatty acid, and methional to the food or drink such that the concentration of 1-octen-3oi and/or 1-octen-3-one to be added Is not less than 0.00006 weight ppm and not more than 0.065 weight ppm,
the concentration of iower fatty acid to be added is not less than 0.0006 weight ppm and not more than 0.7 weight ppm, and
the concentration of methionai to be added is not less than 0.2 weight ppm and not more than 230 weight ppm.
[2] The method of the above-mentioned [1], wherein the lower fatty acid is isovaleric acid.
[3] The method of the above-mentioned [1] or [2], wherein the food or drink Is any one kind selected from the group consisting of a seafood-derived food or drink material, a food or drink obtained by processing a seafood-derived food or drink materiai as a raw material, a brewed or fermented food, and seasoning.
[4] A food or drink produced by the method of any of the above-mentioned [1] - [3].
[5] An aroma and/or flavor-imparting composition comprising 1-octen-3-oi and/or 1-octen-3-one at not less than 0.12 weight ppm and not more than 130 weight ppm,
lower fatty acid at not iess than 1.2 weight ppm and not more than 1400 weight ppm, and methionai at not less than 400 weight ppm and not more than 460000 weight ppm.
[6] The composition of the above-mentioned [5], wherein the lower fatty acid is isovaleric acid.
[Effect of the invention]
According to the present invention, a composition capable of imparting a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has to food or drink

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can be provided. The composition can also impart a stock feeling and a mature feeling to food or drink.

According to the present invention, food or drink having a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has, and a method of producing the food or drink can be provided.
[Description of Embodiments]
In the present specification, the "aroma" means an odor (orthonasal flavor) that can be felt by nose alone without eating or drinking. The "flavor" means an odor (retronasal flavor) that passes from the oral cavity to nose during eating or drinking.

The "brewed or fermented food" means a processed food produced by a production method including a brewing process utilizing a fermentation reaction by microorganisms and includes, for example, soy sauce, miso, fish sauce, sweet cooking rice wine, flavor seasoning and the like. The "seafood extract" means a concentrate obtained by concentrating a broth obtained by cooking seafoods (e.g., oyster, bonito, horse mackerel, chub mackerel, sardine etc.) in hot water. Examples thereof include oyster extract, bonito extract, dried bonito extract, horse mackerel extract, chub mackerel extract, sardine extract and the like.

The "preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has" means a preferable aroma and/or a flavor that seafood-derived raw materiais and plant-derived raw materials intrinsically have, which has(ve) rich thickness, growth (mouthfulness), and continuity. To impart "stock feeling" means that a preferable aroma that a seafood-derived raw material or a plant-derived raw material intrinsically has is imparted, along with which sweetness (sweet taste), salty taste, sour taste, and umami are enhanced, and further, thickness, growth (mouthfulness), continuity, harmony and the like associated therewith are enhanced. The "mature feeling" means what is called "nare" of a brewed or fermented food. Taking noodle soup. which is one kind of brewed or fermented foods, for example for explanation, it means a feeling of unity and harmony of the taste and flavor, which is achieved by mixing "kaeshi" and "dashi" and leaving the mixture for 1 to 3 days for the preparation of an noodle soup.

The "impart" of "impart a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has", "impart a stock feeling", "impart a mature feeling" and the like is a concept including not only newly imparting a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has and the like to food or drink that do not intrinsically has said aroma and/or flavor and the like but also enhancing said aroma and/or flavor and the like by further imparting said aroma and/or flavor and the like to food or drink having said
aroma and/or flavor and the like.
[food and drink of the present invention]
The food and drink of the present invention is produced by a production method including a step of adding 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional (hereinafter to be also referred to as " 3 to 4 components of the present invention") at particular concentrations. (1-octen-3-ol and/or 1-octen-3-one)

Either of 1-octen-3-ol and 1-octen-3-one may be used or both may be used in combination. To establish more natural aroma and/or flavor, 1-octen-3-ol is preferably used.

1-Octen-3-ol contains stereoisomers of (R)(-)-form, (S)(+)-form and racemate, and at least one kind of these can be used. In terms of the titer of aroma and/or flavor, (R)(-)-form and/or racemate are/is preferable, and racemate is particularly preferably used.

A preferable concentration of 1 -octen- $3-0$ and/or 1-octen- 3 -one to be added is generally not less than 0.00006 weight ppm (preferably not less than 0.0003 weight ppm, more preferably not less than 0.0006 weight ppm, further preferably not less than 0.003 weight ppm, particularly preferably not less than 0.006 weight ppm), and not more than 0.065 weight ppm (preferably not more than 0.052 welght ppm, more preferably not more than 0.035 weight ppm, further preferably not more than 0.026 weight ppm, particularly preferably not more than 0.013 weight ppm). When the concentration of 1 -octen- 3 -ol and/or 1 -octen-3-one to be added is not less than 0.00006 weight ppm, a preferable aroma and/or a flavor that a seafood-derived raw material or plant-derived raw material intrinsically has can be sufficiently imparted, and rich thickness, growth (mouthfulness) and continuity can also be sufficiently imparted. Conversely, when it exceeds 0.065 weight ppm, a grass-like, metal-like off-flavor tends to appear.

In the present specification, "the concentration to be added" means the ratio in weight of what is added to the food or drink (e.g., 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional etc.) relative to the whole weight of the food or drink. When the food or drink contains substances similar to those to be added to the food or drink from before the addition, the weight thereof already contained in the food or drink is not included in the weight of the substances to be added to the food or drink.
(lower fatty acids)
As the lower fatty acids, saturated or unsaturated monocarboxylic acid having 3-7 (preferably, 4-6) carbon atoms is preferable, which may be linear or branched chain. For example, isovaleric acid, propionic acid, butyric acid, isobutyric acid, valeric acid, hexanoic acid (caproic acid), heptanoic acid and the like can be mentioned, isovaleric acid or valeric acid is

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preferable, and isovaleric acid is particularly preferable.
The concentration of lower fatty acids to be added is generally not less than 0.0006 weight ppm (preferably not less than 0.0014 weight ppm, more preferably not less than 0.006 weight ppm, more preferably not less than 0.03 weight ppm, particularly preferably not less than 0.06 weight ppm ), and not more than 0.7 weight ppm (preferably not more than 0.6 weight ppm, more preferably not more than 0.4 weight ppm, further preferabiy not more than 0.3 weight ppm, particularly preferably not more than 0.28 weight ppm ). When the concentration of lower fatty acids to be added is less than 0.0006 weight ppm, the preferable aroma and/or a flavor that seafood-derlved raw materials and plant-derived raw materials intrinsically have tends to be weak, and so are rich thickness, growth (mouthfulness) and continuity. Conversely, when it exceeds 0.7 weight ppm, an off-flavor like a foul smell tends to be imparted.
(methional)
The concentration of methional to be added is generally not less than 0.2 weight ppm (preferably not less than 0.46 weight ppm, more preferably not less than 2.2 weight ppm, further preferably not less than 11 weight ppm, particularly preferably not less than 22 welght ppm), and not more than 230 weight ppm (preferably not more than 185 weight ppm, more preferably not more than 115 weight ppm, further preferabiy not more than 95 weight ppm, particularly preferably not more than 91 weight ppm). When the concentration of methional to be added is less than 0.2 weight ppm, the preferable aroma and/or a flavor that seafood-derived raw materials and plantderived raw matenals intrinsically have tends to be weak, and so are rich thickness, growth (mouthfulness) and continuity. Conversely, when it exceeds 230 weight ppm, an off-flavor like a foul smell tends to be imparted.

The food and drink of the present invention may be added with components other than the 3 to 4 components of the present invention as long as the object of the present invention is not impalred. Examples of other components include flavors, saccharides, sweeteners, dietary fibers, vitamins, amino acids such as monosodium glutamate (MSG) and the like, nucleic acids such as inosine monophosphate (IMP) and the like, inorganic salts such as sodium chloride and the like, organic acids such as citric acld and the like, creatine, creatinine, maltol, dimethyl trisulfide, cineol and the like.

While the food and drink of the present invention is not particularly limited, examples of preferable food or drink include seafood-derived food or drink materials such as seafood extract, dried bonito and the like; food or drink obtained by processing seafood-derived food or drink material (including meat, bone and the like) as a raw material such as oyster sauce, lobster bisque,

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imitation crab sticks, soup, stew, curry (including roux, retort curry and the like) and the like; milk and dairy products such as raw milk, cows milk, special milk, raw goat milk, sterilized goat milk, raw sheep milk, composition-adjusted milk, low-fat milk, non-fat milk, processed milk, cream, fresh cream, butter, butter oil, cheese (e.g., natural cheese, processed cheese, cottage cheese etc.), condensed whey, ice creams (e.g., ice cream, ice milk, lactic ice etc.), condensed milk, condensed skim milk, evaporated milk, evaporated skim milk, sweetened condensed milk, sweetened condensed skim milk, powdered whole milk, skimmed miik powder, cream powder, whey powder, protein condensed whey powder, butter mik powder, sweetened milk powder, formulated milk powder, fermented milk, lactic acid bacteria drinks, milk drinks, white sauce, yogurt and the like; brewed or fermented foods such as soy sauce (e.g., koikuchi soy sauce, usukuchi soy sauce, tamari soy sauce, saishikomi soy sauce, white soy sauce, fish sauce, noodle soup, soup for Japanese nabe etc.), miso (e.g., red miso, white miso, Sendai miso, Hatcho miso, barley miso, rice miso, miso soup, Tian mian jiang, Gochujang etc.) and the like; seasonings such as sauce (e.g., Worcestershire sauce, demiglace sauce, tomato sauce etc.), dressing (e.g., French dressing, Italian dressing, Caesar dressing etc.), flavor seasoning (e.g., bonito, sardine, boiled and drled fish, chicken , pork , beef etc. as the kind thereof), savory seasoning (e.g., yeast extract, chicken extract, pork extract, beef extract, seafood extract, vegetabie extract, hydroiyzed protein etc.) and the like; potherb such as garlic, onion, ginger, welsh onion, Chinese chive, Japanese parsley, Japanese ginger, celery, perilla, Japanese honewort, Japanese horseradish and the like and food or drink obtained by processing potherb as raw materials and the like. Particularly preferred are seafoodderived food or drink material, food or drink obtained by processing seafood-derived food or drink material as raw material, brewed or fermented food or seasoning. The "processing" of the "food or drink obtained by processing seafood-derived food or drink material as raw material" and "potherb and food or drink obtained by processing potherb as raw material" is a concept including production, cooking and the like.

The food and drink of the present invention can be produced by using raw materials similar to those of known foods or drinks and by a known production method except that a step of adding 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional at the above-mentioned concentrations is included.

Each component to be added to the food or drink of the present invention may be, for example, synthetic products, extracted products and the like as long as they can be used for foods or drinks, and a food material containing a high content of each component may also be used.

A method for adding 1-octer1-3-0l and/or 1-octer-3-one, lower fatty acids, and methional to
the food or drink is not particularly limited and, for example, each compound may be individually added or a food material containing at least one kind of 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional may be added. Altematively, the aroma and/or flavor imparting composition of the present invention to be mentioned later may be added.

The form of 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional or a food material containing these when added to the food or drink of the present invention is not particularly limited and, for example, dried powder, paste, solution and the like can be mentioned.

The timing of addition of 1-octen-3-oi and/or 1-octen-3-one, lower fatty acids, and methional to the food or drink of the present invention is not particularly limited. For example, they may be added together with other raw materials when the food or drink are produced, may be added after completion of the food or drink, or may be added to the food or drink immediately before eating and/or during eating.
[aroma and/or flavor imparting composition of the present invention]
The aroma and/or flavor imparting composition of the present invention (hereinafter to be also referred to as "the composition of the present invention") essentially contains 1-octen-3-01 and/or 1-octen-3-one, lower fatty acids, and methional.

As 1-octen-3-ol and 1-octen-3-one to be contained in the composition of the present invention, those similar to the ones used for the food or drink of the present invention can be used, and preferable embodiment thereof is the same.

The composition of the present invention is preferably added to food or drink such that the concentration of 1 -octen- 3 -ol and/or 1 -octen- 3 -one to be added relative to the food or drink is not less than 0.00006 weight ppm (more preferably not less than 0.0003 weight ppm, still more preferably not less than 0.0006 weight ppm, further preferably not less than 0.003 weight ppm, particularly preferably not less than 0.006 weight ppm), and not more than 0.065 weight ppm (more preferably not more than 0.052 weight ppm, still more preferably not more than 0.035 weight ppm, further preferably not more than 0.026 weight ppm, particuiarly preferably not more than 0.013 weight ppm).

In addition, the composition of the present invention is preferably added to food or drink such that the concentration of lower fatty acids to be added relative to the food or drink is not less than 0.0006 weight ppm (more preferably not less than 0.0014 weight ppm, still more preferably not less than 0.006 weight ppm, further preferably not less than 0.03 weight ppm, particularly preferabiy not less than 0.06 weight ppm), and not more than 0.7 weight ppm (more preferably not more than 0.6 weight ppm, stili more preferably not more than 0.4 weight ppm, further preferably not more

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than 0.3 weight ppm, particularly preferably not more than 0.28 weight ppm).
Moreover, the composition of the present invention is preferably added to food or drink such that the concentration of methional to be added relative to the food or drink is not less than 0.2 weight ppm (more preferably not less than 0.46 weight ppm, still more preferably not less than 2.2 weight ppm, further preferably not less than 11 weight ppm, particularly preferably not less than 22 weight ppm), and not more than 230 weight ppm (more preferably not more than 185 weight ppm, still more preferably not more than 115 weight ppm, further preferably not more than 95 weight ppm, particularly preferably not more than 91 weight ppm).

The content of 1 -octen-3-ol and/or 1 -octen- 3 -one in the composition of the present Invention can be approprately set such that the concentration of 1-octen-3-ol and/or 1-octen-3-one to be added relative to the food or drink falls within the above-mentioned ranges, which is generally not less than 0.12 weight ppm (preferably not less than 0.6 weight ppm. more preferably not less than 1.2 weight ppm, further preferably not less than 6 weight ppm, particularly preferably not less than 12 weight ppm), and not more than 130 weight ppm (preferably not more than 104 weight ppm, more preferably not more than 70 weight ppm, further preferably not more than 52 weight ppm, particularly preferably not more than 26 weight ppm). When the content of 1-octen-3-ol and/or 1 -octen-3-one is iess than 0.12 weight ppm, an influence of the excipient on the quality tends to increase. In addition, since the amount of the aroma and/or flavor imparting composition to be added increases, changes In the package size and the method of use tend to occur when added to existing products. Conversely, when the content exceeds 130 weight ppm, the possibility of segregation during mixing for the production of products tend to become high.

In the present specification, the "content of 1-octen-3-ol and/or 1-octen-3-one in the composition of the present invention" is the ratio in weight of 1-octen-3-ol and/or 1-octen-3-one contained in the composition of the present invention, relative to the whole weight of the composition of the present invention (inciuding the weight of 1-octen-3-ol and/or 1-octen-3-one). The "content" described in other parts of the present specification is also calculated according to a method analogous thereto.

The content of the lower fatty acids in the composition of the present invention can be appropriately set such that the concentration of the lower fatty acids to be added relative to food or drink falls within the above-mentioned ranges, which is generally not less than 1.2 weight ppm (preferably not less than 2.8 weight ppm, more preferably not less than 12 weight ppm, further preferably not less than 60 weight ppm, particularly preferably not less than 120 weight ppm), and not more than 1400 weight ppm (preferably not more than 1200 weight ppm, more preferably not

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more than 800 weight ppm, further preferably not more than 600 weight ppm, particularly preferably not more than 560 weight ppm). When the content of lower fatty acids is less than 1.2 weight ppm, an influence of the excipient on the quality tends to increase. In addition, since the amount of the aroma and/or flavor imparting composition to be added increases, changes in the package size and the method of use tend to occur when added to existing products. Conversely, when the content exceeds 1400 weight ppm, the possibility of segregation during mixing for the production of products tend to become high.

The content of methional in the composition of the present invention can be appropriately set such that the concentration of methional to be added to food or drink falls within the abovementioned ranges, which is generally not less than 400 weight ppm (preferably not less than 920 weight ppm, more preferably not less than 4400 weight ppm, further preferably not less than 22000 weight ppm, particularly preferably not less than 44000 weight ppm), and not more than 460000 weight ppm (preferabiy not more than 370000 weight ppm, more preferabiy not more than $\mathbf{2 3 0 0 0 0}$ weight ppm, further preferably not more than 190000 weight ppm, particularly preferably not more than 182000 weight ppm). When the content of methional is less than 400 weight ppm, an influence of the excipient on the quality tends to increase. In addition, since the amount of the aroma and/or flavor imparting composition to be added increases, changes in the package size and the method of use tend to occur when added to existing products. Conversely, when the content exceeds 460000 weight ppm, the possibility of segregation during mixing for the production of products tend to become high.

The composition of the present invention may contain components other than the 3 or 4 components of the present invention as long as they do not impair the object of the present invention. Examples of other components include flavors, saccharides, sweeteners, dietary fibers, vitamins, amino acids such as monosodium glutamate (MSG) and the like, nucleic acids such as inosine monophosphate (IMP) and the like, inorganic salts such as sodium chloride and the like, organic acids such as citric acid and the like, creatine, creatinine, maltol, dimethyl trisulfide, and cineol.

Each component of the composition of the present invention may be, for exampie, synthetic products, extracted products and the like as long as they can be used for foods or drinks, and a food material containing a high content of each component may also be used.

While the form of the composition of the present invention is not particularly limited, for example, soiid (including powder, granular and the like), liquid (including slurry and the like), gel, paste and the like can be mentioned.

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The production method of the composition of the present invention may be a known method. Examples thereof include (1) a method including mixing respective compounds of 1 -octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional, or a food material containing at least one kind of these, and pulverizing and mixing them in a mortar or mixer, (2) a method including dissolving respective compounds of 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional, or a food material containing at least one kind of these in, for example, water, ethanol, edible fats and oils, propylene glycol and the like, Independently mixing respective compounds of 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional, or a food material containing at least one kind of these with various excipients and the like, and mixing them and the like, irrespective of liquid or solid, and the like.

While the food or drink to be added with the composition of the present invention are not particularly limited, specific examples include those similar to the food or drink exemplified for the above-mentioned food or drink of the present invention, and preferable food or drink are the same.

The concentration of the composition of the present invention to be added relative to food or drink can be appropriately set such that each concentration of 1-octen-3-ol and/or 1-octen-3-one, lower fatty acids, and methional to be added to the food or drink falls within the above-mentioned ranges, which is generally not less than 400 weight ppm (preferably not less than 920 weight ppm, more preferably not less than 4400 weight ppm, further preferably not less than 22000 weight ppm, particularly preferably not less than 44000 weight ppm), and not more than 470000 weight ppm (preferably not more than 380000 weight ppm, more preferably not more than 240000 weight ppm, further preferably not more than 200000 weight ppm, particularly preferably not more than 182000 weight ppm).

The timing of addition of the composition of the present invention to the food or drink is not particularly limited. For example, they may be added together with other raw materials when the food or drink are cooked or produced, may be added after completion of the food or drink, or may be added to the food or drink immediately before eating and/or during eating.

The present invention is explained in more detail in the following by referning to Examples, which are not to be construed as limitative.

## [Examples]

1-Octen-3-01, 1-octen-3-one, isovaleric acid and methional used in Examples were all manufactured by Sigma-Aldrich Japan K.K. As 1-octen-3-ol, racemate was used.

The foods and drinks used in the Examples are shown in Table 1.

Table 1

| product field |  | product or menu | trade name | sales company |
| :---: | :---: | :---: | :---: | :---: |
| seafood | dried bonito | bonito stock | CHUBODAIKO HONDUKURI ICHIBANDASHI KATSUO | Ajinomoto Co., Inc. |
|  | oyster | oyster sauce | Cook Do OYSTER SAUCE | Ajinomoto Co., Inc. |
|  | shrimp | lobster bisque | LOBSTER BISQUE | Shimizu Shokuhin Kaisya Lid. |
|  | crab | imitation crab sticks | HOGUREYASUISHOKKAN KANIHUMI KAMABOKO | Fushimikamaboko Co., Ltd. |
| brewed or fermented food | soy sauce | soy sauce | SENDO NO ITEKI TOKUSENSHOY | YAMASA CORPORATION |
|  |  | fish sauce | YUIRU NAM PLA | YOUK FOOD Co., Ltd. |
|  |  | noodle soup | KATSUOBUSHI NINBENNO TSUYU NO MOTO | NINBEN Co., Ltd. |
|  |  | soup for Japanese nabe | SHIOTYANKO NABETSUY | DAISHO Co., Ltd. |
|  | miso | miso soup | JUNSEI KOUIMISO | MARUSAN-AI Co., Ltd. |
|  |  | Tian mian jiang | Cook Do TIAN MIAN JIANG CHUKA AMAMISO | Ajinomoto Co., Inc. |
|  |  | Gochujang | Cook Do Korea GOCHUJANG KANKOKU TOGARASHIMISO | Ajinomoto Co., Inc. |
| seasoning | sauce | Worcestershire sauce | WORCESTERSHIRE SAUCE | BUL-DOG SAUCE Co., Ltd. |
|  |  | demiglace sauce | Heinz DEMIGLACE SAUCE | Heinz Japan Ltd. |

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As the foods and drinks shown in Table 1, commercially available product may be directly used or prepared according to the given preparation method described on the package and the like. (Preparation of Examples 1-21 and Comparative Examples 1-77)

The foods and drinks shown in Table 1 were each weighted by 100 ml , and 1-octen-3-ol,
5 1-octen-3-one, isovaieric acid and methional were added to each food or drink thus weighted to the addition concentrations (unit: weight ppm) shown in Table 2-1-Table 2-18.
[Table 2-1]

| name of component | Ex. 1 | Ex. 2 | Ex. 3 | Ex. 4 |
| :--- | :---: | :---: | :---: | :---: |
| 1-octen-3-01 | 0.000064 | 0.00032 | 0.0016 | 0.0032 |
| isovaleric acid | 0.00136 | 0.0068 | 0.034 | 0.068 |
| methional | 0.4546 | 2.273 | 11.365 | 22.73 |

[Table 2-2]

| name of component | Ex. 5 | Ex. 6 | Ex. 7 | Ex. 8 | Ex. 9 | Ex. 10 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-octen-3-ol | 0.0064 | 0.0096 | 0.0128 | 0.016 | 0.0256 | 0.032 |
| isovaleric acid | 0.136 | 0.204 | 0.272 | 0.34 | 0.544 | 0.68 |
| methional | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |

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[Table 2-3]

| name of component | Ex. 11 | Ex. 12 | Ex. 13 | Ex. 14 | Ex. 15 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 1-octen-3-one | 0.000064 | 0.000128 | 0.00064 | 0.0032 | 0.0064 |
| isovaleric acid | 0.00068 | 0.00136 | 0.0068 | 0.034 | 0.068 |
| methional | 0.2273 | 0.4546 | 2.273 | 11.365 | 22.73 |

[Table 2-4]

| name of component | Ex. 16 | Ex. 17 | Ex. 18 | Ex. 19 | Ex. 20 | Ex. 21 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-octen-3-one | 0.0128 | 0.0192 | 0.0256 | 0.032 | 0.0512 | 0.064 |
| isovaleric acid | 0.136 | 0.204 | 0.272 | 0.34 | 0.544 | 0.68 |
| methionai | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |


| name of component | Comp. Ex. <br> 1 | Comp. Ex. <br> 2 | Comp. Ex. <br> 3 | Comp. Ex. <br> 4 | Comp. Ex. <br> 5 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| isovaleric acid | 0.00068 | 0.00136 | 0.0068 | 0.034 | 0.068 |
| methional | 0.2273 | 0.4546 | 2.273 | 11.365 | 22.73 |

[Table 2-6]

| name of component | Comp. <br> Ex. 6 | Comp. <br> Ex. 7 | Comp. <br> Ex. 8 | Comp. <br> Ex.9 | Comp. <br> Ex. 10 | Comp. <br> Ex. 11 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| isovaleric acid | 0.136 | 0.204 | 0.272 | 0.34 | 0.544 | 0.68 |
| methional | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |

[Table 2-7]

| name of component | Comp. Ex. <br> 12 | Comp. Ex. <br> 13 | Comp. Ex. <br> 14 | Comp. Ex. <br> 15 | Comp. Ex. <br> 16 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 1-octen-3-one | 0.000064 | 0.000128 | 0.00064 | 0.0032 | 0.0064 |
| methional | 0.2273 | 0.4546 | 2.273 | 11.365 | 22.73 |

5
[Table 2-8]

| name of component | Comp. <br> Ex. 17 | Comp. <br> Ex. 18 | Comp. <br> Ex. 19 | Comp. <br> Ex. 20 | Comp. <br> Ex. 21 | Comp. <br> Ex. 22 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-octen-3-one | 0.0128 | 0.0192 | 0.0256 | 0.032 | 0.0512 | 0.064 |
| methional | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |

[Table 2-9]

| name of component | Comp. Ex. <br> 23 | Comp. Ex. <br> 24 | Comp. Ex. <br> 25 | Comp. Ex. <br> 26 | Comp. Ex. <br> 27 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 1 -octen-3-01 | 0.000032 | 0.000064 | 0.00032 | 0.0016 | 0.0032 |
| methional | 0.2273 | 0.4546 | 2.273 | 11.365 | 22.73 |

[Table 2-10]

| name of component | Comp. | Comp. | Comp. | Comp. | Comp. | Comp. |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | Ex. 28 | Ex. 29 | Ex. 30 | Ex. 31 | Ex. 32 | Ex. 33 |


| 1-octen-3-01 | 0.0064 | 0.0096 | 0.0128 | 0.016 | 0.0256 | 0.032 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| methional | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |

[Table 2-11]

| name of component | Comp. Ex. <br> 34 | Comp. Ex. <br> 35 | Comp. Ex. <br> 36 | Comp. Ex. <br> 37 | Comp. Ex. <br> 38 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| methiona! | 0.2273 | 0.4546 | 2.273 | 11.365 | 22.73 |

5 TTable 2-12]

| name of component | Comp. <br> Ex. 39 | Comp. <br> Ex. 40 | Comp. <br> Ex. 41 | Comp. <br> Ex. 42 | Comp. <br> Ex. 43 | Comp. <br> Ex. 44 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| methional | 45.46 | 68.19 | 90.92 | 113.65 | 181.84 | 227.3 |

[Table 2-13]

| name of component | Comp. Ex. <br> 45 | Comp. Ex. <br> 46 | Comp. Ex. <br> 47 | Comp. Ex. <br> 48 | Comp. Ex. <br> 49 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 1 1-octen-3-01 | 0.000032 | 0.000064 | 0.00032 | 0.0016 | 0.0032 |

10
[Table 2-14]

| name of component | Comp. <br> Ex. 50 | Comp. <br> Ex. 51 | Comp. <br> Ex. 52 | Comp. <br> Ex. 53 | Comp. <br> Ex. 54 | Comp. <br> Ex. 55 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 1-octen-3-01 | 0.0064 | 0.0096 | 0.0128 | 0.016 | 0.0256 | 0.032 |

[Table 2-15]
15

| name of component | Comp. Ex. <br> 56 | Comp. Ex. <br> 57 | Comp. Ex. <br> 58 | Comp. Ex. <br> 59 | Comp. Ex. <br> 60 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 1-octen-3-one | 0.000064 | 0.000128 | 0.00064 | 0.0032 | 0.0064 |

TTable 2-16]

| name of component | Comp. <br> Ex. 61 | Comp. <br> Ex. 62 | Comp. <br> Ex. 63 | Comp. <br> Ex. 64 | Comp. <br> Ex. 65 | Comp. <br> Ex. 66 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 1-octen-3-one | 0.0128 | 0.0192 | 0.0256 | 0.032 | 0.0512 | 0.064 |

[Table 2-17]
5

| name of component | Comp. Ex. <br> 67 | Comp. Ex. <br> 68 | Comp. Ex. <br> 69 | Comp. Ex. <br> 70 | Comp. Ex. <br> 71 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| isovaleric acid | 0.00068 | 0.00136 | 0.0068 | 0.034 | 0.068 |

[Table 2-18]

| name of component | Comp. <br> Ex. 72 | Comp. <br> Ex. 73 | Comp. <br> Ex. 74 | Comp. <br> Ex. 75 | Comp. <br> Ex. 76 | Comp. <br> Ex. 77 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| isovaleric acid | 0.136 | 0.204 | 0.272 | 0.34 | 0.544 | 0.68 |

(Evaluation of Examples 1-21 and Comparative Examples 1-77)
Two to six expert panelists ate respective food and drink and evaluated by comparison with the control according to the following criteria. As the control, each food or drink without addition of 1-octen-3-ol, 1-octen-3-one, isovaleric acid and methional was used. The "expected effect in the following criteria means that the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has is mainly imparted with thickness and growth, a stock feeling and a mature feeling are imparted, and furthermore, the quality of the food or drink is improved by the addition of these.
[Evaluation criteria]
$x$ : as compared to control, quality of aroma and/or flavor decreased
-: almost same as control (expected effect is void)
$\Delta$ : expected effect is low
O: expected effect is high
$\bigcirc$ © expected effect is extremely high
The results are shown in Table 3-1 - Table 3-9.
[Table 3-1]

| product field |  | product or menu | Example |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| seafood | dred bonito |  | bonito stock | $\Delta$ | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  | oyster | oyster sauce | $\Delta$ | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  | shrimp | lobster bisque | $\Delta$ | 0 | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  | crab | imitation crab sticks | $\Delta$ | 0 | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
| brewed or fermented food | soy sauce | soy sauce | $\Delta$ | 0 | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | fish sauce | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | noodle soup | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | soup for Japanese nabe | $\Delta$ | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  | miso | miso soup | $\Delta$ | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  |  | Tian mian jiang | $\Delta$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $\Delta$ | $\Delta$ |
|  |  | Goctujang | $\Delta$ | 0 | 0 | 0 | $\bigcirc$ | 0 | 0 | 0 | $\Delta$ | $\Delta$ |
| seasoning | sauce | Worcestershire sauce | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\Delta$ |
|  |  | demiglace sauce | $\Delta$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $\Delta$ | $\Delta$ |

[Table 3-2]

| product field |  | product or menu | Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| seafood | dried bonito |  | bonito stock | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  | oyster | oyster sauce | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  | shrimp | lobster bisque | $\Delta$ | $\Delta$ | O | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  | crab | imitation crab sticks | $\Delta$ | $\Delta$ | 0 | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | O | $\Delta$ | $\Delta$ |
| brewed or fermented food | soy sauce | soy sauce | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | fish sauce | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | noodle soup | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | soup for Japanese nabe | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  | miso | miso soup | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ | $\Delta$ |
|  |  | Tian mian jiang | $\Delta$ | $\Delta$ | 0 | 0 | 0 | 0 | 0 | 0 | O | $\Delta$ | $\Delta$ |
|  |  | Goctujang | $\Delta$ | $\Delta$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | 0 | 0 | $\Delta$ | $\Delta$ |
| seasoning | sauce | Worcestershire sauce | $\Delta$ | $\Delta$ | 0 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | 0 | $\Delta$ |
|  |  | demiglace sauce | $\Delta$ | $\Delta$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $\Delta$ | $\Delta$ |

As is clear from Table 2-1, Table 2-2 and Table 3-1, when 1-octen-3-ol, isovaleric acid and methional were added and the concentration of 1-octen-3-ol added relative to food or drink was 0.000064 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has is mainly imparted with thickness and growth, and a stock feeling and a mature feeling are imparted tended to be weak. On the other hand, when the concentration was not less than 0.00032 weight ppm and not more than 0.016 weight ppm, the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was mainly imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently Imparted, and furthermore, the quality of the food or drink was improved by the Impartation of these.

When the concentration of Isovaleric acid added relative to food or drink was 0.00136 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract Intrinsically has is mainly imparted with thickness and growth, and a stock feeling and a mature feeling are imparted tended to be weak. On the other hand, when the concentration was not less than 0.0068 weight ppm and not more than 0.34 weight ppm, the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was mainly imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently imparted, and furthermore, the quality of the food and drink was improved by the impartation of these.

When the concentration of methional added relative to food or drink was 0.4546 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has is mainly imparted with thickness and growth, and a stock feeling and a mature feeling are imparted tended to be weak. When the concentration was not less than 2.273 weight ppm and not more than 113.65 weight ppm, the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was mainly imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently imparted, and furthermore, the quality of the food and drink was improved by the impartation of these.

As is clear from Table 2-3, Table 2-4 and Table 3-2, when 1-octen-3-one, isovaleric acid and methional were added and the concentration of 1-octen-3-one added relative to food or drink was not less than 0.000064 weight ppm and not more than 0.000128 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinslcally has is mainly imparted with thickness and growth, and a stock feeling and a mature feeling are imparted tended to be weak. On the other hand, when the concentration was not less than 0.00064 weight ppm and not more than 0,032 weight ppm, the preferable aroma and/or a flavor that brewed or
fermented food or seafood extract intrinsically has was mainly Imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently imparted, and furthermore, the quality of the food or drink was improved by the impartation of these.

When the concentration of isovaleric acid added relative to food or drink was not less than 0.00068 weight ppm and not more than 0.00136 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has is mainly Imparted with thickness and growth, and a stock feeling and a mature feeling are Imparted tended to be weak. On the other hand, when the concentration was not less than 0.0068 weight ppm and not more than 0.34 weight ppm, the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was mainly imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently imparted, and furthermore, the quality of the food or drink was improved by the impartation of these.

When the concentration of methional added relative to food or drink was not less than 0.2273 weight ppm and not more than 0.4546 weight ppm, the effects that a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has is mainly imparted with thickness and growth, and a stock feeling and a mature feeling are imparted tended to be weak. Furthermore, when the concentration was not less than 2.273 weight ppm and not more than 113.65 weight ppm, the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was mainly imparted with thickness and growth, a stock feeling and a mature feeling were sufficiently imparted, and furthermore, the quality of the food or drink was improved by the impartation of these.
[Table 3-3]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| seafood | dried bonito |  | bonito stock | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | fish sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | noodle soup | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | miso | miso soup | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | Tian mian jiang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Goctujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

[Table 3-4]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| seafood | dred bonito |  | bonito stock | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | fish sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | noodle soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | miso | miso soup | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | Tran mian jang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Gochujang | - | - | - | - | - | - | $\bullet$ | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

[Table 3-5)

| product field |  | product or mens | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
| seafood | dried bonito |  | bonito stock | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | fish sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | noodle soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  | miso | miso soup | - | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | Tian mian jiang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Gochujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | $\bullet$ | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

[Table 3-6]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| seafood | dred bonito |  | bonito stock | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | fish sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | noodle soup | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  | miso | miso soup | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  |  | Tian mian jiang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Goctujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | - | $\Delta$ | - | - | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

[Table 3-7]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
| seafood | dred bonito |  | bonito stock | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | fish sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | noodle soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | miso | miso soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | Tran mian jiang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Goctujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

Table 3-8]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 |
| seafood | dried bonito |  | bonito stock | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | fish sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | noodle soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | miso | miso soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | Tian mian jaing | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Goctujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

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[Table 3-9]

| product field |  | product or menu | Comparative Example |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 |
| seafood | dred bonito |  | bonito stock | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | oyster | oyster sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | shrimp | lobster bisque | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | crab | imitation crab sticks | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
| brewed or fermented food | soy sauce | soy sauce | - | - | - | - | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | fish sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | noodle soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | soup for Japanese nabe | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  | miso | miso soup | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | Tan mian jiang | - | - | - | - | - | - | - | - | - | - | - |
|  |  | Gochujang | - | - | - | - | - | - | - | - | - | - | - |
| seasoning | sauce | Worcestershire sauce | - | - | - | $\Delta$ | $\Delta$ | $\Delta$ | - | - | - | - | - |
|  |  | demiglace sauce | - | - | - | - | - | - | - | - | - | - | - |

As is clear from Table 2-5 - Table 2-18 and Table 3-3 - Table 3-9, the expected effect could not be confirmed at all by only one component and a combination of only two components. Even when the effect was confirmed, the effect was confirmed only on a part of the foods and drinks of Table 1, and the preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has was not imparted to all of the foods and drinks of Table 1. (Production Example of aroma and/or flavor imparting composition of the present invention)

Dextrin was stirred by a lab mixer blending machine (manufactured by Hosokawa Micron Corporation) at a rotation speed of $10-60 \mathrm{rpm}$. To dextrin ( $81.8 \mathrm{~g}-95.6 \mathrm{~g}$ ) under stirring were added 1-octen-3-ol and/or 1-octen-3-one to a content of 12 weight ppm -26 weight ppm, isovaleric acid to a content of 120 weight ppm - 560 weight ppm, and methional to a content of $4.4 \mathrm{wt} \%-18.2$ $w t \%$, and they were mixed to prepare the composition of the present invention. [Industrial Applicability]

According to the present invention, a composition capable of imparting a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has to food or drink can be provided. In addition, the composition can also impart a stock feeling and a mature feeling to food or drink.

According to the present invention, moreover, food and drink having a preferable aroma and/or a flavor that brewed or fermented food or seafood extract intrinsically has, and a method of producing the food or drink can be provided.

This application is based on patent application No. 2012-23550 filed in Japan, the contents of which are encompassed in full herein.

## 17074

Claims

1. A method of producing a food or drink, comprising a step of adding 1-octen-3-ol and/or 1-octen-3-one, lower fatty acid, and methional to the food or drink such that the concentration of 1-octen-3- ol and/or 1-octen-3-one to be added is not less than 0.00006 weight ppm and not more than 0.065 weight ppm,
the concentration of lower fatty acid to be added is not less than 0.0006 weight ppm and not more than 0.7 weight ppm, and
the concentration of methional to be added is not less than 0.2 weight ppm and not more than 230 weight ppm.
2. The method according to claim 1 , wherein the lower fatty acid is isovaleric acid.
3. The method according to claim 1 or 2 , wherein the food or drink is any one kind selected from the group consisting of a seafood-derived food or drink material, a food or drink obtained by processing a seafood-derived food or drink material as a raw material, a brewed or fermented food, and seasoning.
4. A food or drink produced by the method according to any one of claims 1 to 3 .
5. An aroma and/or flavor-imparting composition comprising 1-octen-3-ol and/or 1-octen-3-one at not less than 0.12 weight ppm and not more than 130 weight ppm,
lower fatty acid at not less than 1.2 weight ppm and not more than 1400 weight ppm, and methional at not less than 400 weight ppm and not more than 460000 weight ppm.
6. The composition according to claim 5 , wherein the lower fatty acid is isovaleric acid.
