CLAIMS

1. A method for evaluating a sulfur compound-containing substance for evaluating a plurality of test substances, comprising performing the steps of:

providing quantitative values of a plurality of sulfur compounds and a plurality of sulfur metabolism-related compounds for each of the test substances;

analyzing analysis values of the test substances, including the quantitative values, by multidimensional scaling, and creating a scatter diagram having two or more types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances; and

assessing redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances, on the basis of the positions on the scatter diagram;

wherein the sulfur compounds include glutathione and a derivative thereof, and wherein the sulfur metabolism-related compound include an ergothioneine metabolism related compound.

2. A method for evaluating a sulfur compound-containing substance for evaluating a plurality of test substances, comprising performing the steps of:

providing quantitative values of a plurality of sulfur compounds and a plurality of sulfur metabolism-related compounds for each of the test substances;

analyzing analysis values of the test substances, including the quantitative values, by multidimensional scaling, and creating a scatter diagram having two or more types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances; and

assessing redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances, on the basis of the positions on the scatter diagram;

wherein the sulfur compounds include at least 20 types, and wherein the sulfur metabolism-related compounds include at least 18 types.

3. A method for evaluating a sulfur compound-containing substance for evaluating a plurality of test substances, comprising performing the step of:

providing quantitative values of a plurality of sulfur compounds and a plurality of sulfur metabolism-related compounds for each of the test substances;

analyzing analysis values of the test substances, including the quantitative values, by multidimensional scaling, and creating a scatter diagram having two or more types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances; and

assessing redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances, on the basis of the positions on the scatter diagram;

wherein the sulfur compounds include sulfite ion, thiosulfate ion, sulfide ion, glutathione, glutathione monosulfide, glutathione disulfide, glutathione trisulfide, glutathione tetrasulfide, oxidized glutathione, oxidized glutathione monosulfide, oxidized glutathione disulfide, oxidized glutathione trisulfide, oxidized glutathione tetrasulfide, cysteine, cysteine monosulfide, methionine, 2-furfurylthiol, benzyl mercaptan, 4-mercapto-4-methyl-pentane-2-one, and 2-mercaptoethyl acetate, and

wherein the sulfur metabolism-related compounds include cystine, cystathionine, *S*-adenosylmethionine, homocysteine, *S*-sulfocysteine, *O*-phosphoserine, *O*-

acetylserine, *N*-acetylserine, *O*-succinylhomoserine, adenosine 5'-phosphosulfate, lanthionine, 3'-phosphoadenosine -5'-sulfate, 3'-phosphoadenosine -5'-phosphosulfate, ergothioneine, hercynine, 5-glutamylcysteine, *S*-hercynyl-cysteine sulfoxide, and 5-glutamyl-*S*-hercynyl-cysteine sulfoxide.

4. The method for evaluating a sulfur compound-containing substance according to any one of claims 1 to 3, wherein the scatter diagram is a two-dimensional scatter diagram having two types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor.

5. The method for evaluating a sulfur compound-containing substance according to any one of claims 1 to 3, wherein the scatter diagram is a three-dimensional scatter diagram having three types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor.

6. A method for evaluating a sulfur compound-containing substance for evaluating a plurality of test substances, comprising performing the steps of:

providing quantitative values of a plurality of sulfur compounds and a plurality of sulfur metabolism-related compounds for each of the test substances;

analyzing analysis values of the test substances, including the quantitative values, by multidimensional scaling, and creating a scatter diagram having two or more types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances; and

assessing redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances, on the basis of the positions on the scatter

diagram;

the method comprising performing a method for quantifying a volatile low-molecular-weight sulfur compound, wherein the step of providing the quantitative values comprises the steps of:

pretreating the volatile low-molecular-weight sulfur compound by modification with an alkylating agent,

analyzing the modified volatile low-molecular-weight sulfur compound by a liquid chromatography mass spectrometry technique, and quantifying the volatile low-molecular-weight sulfur compound;

wherein the alkylating agent is one or more types of compounds selected from the group consisting of 5, 5'-dithiobis (2-nitrobenzoic acid), 2, 6-dichlorophenolindophenol, *p*-chloromercuribenzoic acid, iodoacetamide, *N*-ethylmaleimide, and monobromobimane.

7. A method for evaluating a sulfur compound-containing substance for evaluating a plurality of test substances, comprising performing the steps of:

providing quantitative values of a plurality of sulfur compounds and a plurality of sulfur metabolism-related compounds for each of the test substances;

analyzing analysis values of the test substances, including the quantitative values, by multidimensional scaling, and creating a scatter diagram having two or more types of scales selected from redox level, contribution of microbial metabolism, anti-oxidative capacity, or aroma or odor of the test substances; and

assessing redox level, contribution of microbial metabolism, anti-oxidative capacity, or the aroma or odor of the test substances, on the basis of the positions on the scatter diagram;

the method comprising performing a method for quantifying a volatile low-molecular-weight sulfur compound, wherein the step of providing the quantitative values

comprises the steps of:

pretreating the volatile low-molecular-weight sulfur compound by modification with an alkylating agent,

analyzing the modified volatile low-molecular-weight sulfur compound by a liquid chromatography mass spectrometry technique, and quantifying the volatile low-molecular-weight sulfur compound;

wherein the volatile low-molecular-weight sulfur compound is one or more types of compounds selected from the group consisting of 2-furfurylthiol, benzyl mercaptan, 4-mercapto-4-methylpentane-2-one, and 2-mercaptoethyl acetate.