

A SALINITY METERING SYSTEM FOR FOOD WITH IMPROVED ACCURACY AND A METHOD OF USING THE SYSTEM

Technical Field

5 The present disclosure relates to a salinity metering system with improved accuracy in deriving a refined amount or concentration of an edible salt in a food to be consumed comprising substantially amount of fluid. More specifically, the device is incorporated with a database storing at least one reference value about known or predetermined salinity of one or more dishes. The reference value can be used to as part of an input to derive a more accurate result
10 about salinity of the food tested using the disclosed system.

Background

The tastes of Thai dishes are rich due to the complex flavours originated from the various ingredients used in preparing them. Despite its excellent tastiness, some of the Thai dishes or
15 foods containing relatively high salt content may cause adverse effect towards the health of the consumers if these dishes are consumed in a frequent manner. The outcome can be extremely dire especially when the consumers have predisposed health issues such as high blood pressure, defective heart diseases, etc. As such, it will great if the consumer can measure salinity of one or more dishes to be consumed to ensure the salt intake does not exceed the daily limit. It is
20 not easy for the consumers to gauge the salt content of the dishes by mere taste buds as the saltiness in these dishes may be shielded by other compounds reaped from other ingredients used in the cooking process. For example, the salty taste of the Japanese miso soup is mainly originated from Shoyu or a soy source, which are relatively safe for consumption compared to sodium salt. Still, conventional salt meters such as those disclosed in Korean patent no.
25 KR101366109, Japanese patent no. JP6565076, United States patent no. US958496 and US1047395 may not be suitable for testing or measuring salt content in one or more dishes. Particularly, the consumable dishes especially those of high amount of aqueous or water content are filled with various soluble compounds of different polarities. These compounds significantly affect or disrupt conventional salinity measurement, which assumes edible salt
30 such as sodium chloride is the mere ions exist in an aqueous phase tested, working on the general electrical conductivity (EC) principle. Therefore, a salinity metering system capable of

calculating or deriving a more accurate results regarding salt content of one or more dishes, compared to conventional salt meter, is highly desired.

Summary

- 5 One object of the present disclosure is to provide a metering system of salt, particularly sodium chloride salt, present in a food or dish having substantial amount of aqueous solution or content. The disclosed system possesses improved accuracy in determining the salt content of a dish or a food dissolved in the aqueous solution.
- 10 Further object of the present disclosure is to offer a salinity metering system for food having improved accuracy by way of incorporating a database having different reference values about general salinity of different dishes and food that these reference values are employed in a process implemented by the disclosed system to calculate or derive the amount of the salt content. The reference values permit the disclosed system to perform an error or deviation
- 15 correction towards a raw value or reading of the salt content obtained through a sampling device of the disclosed system.

Another object of the present disclosed includes contributing a method for salinity measurement in food with enhanced accuracy. Specifically, the disclosed method involves a

20 deviation or error correction step in calculating or computing a refined amount or concentration of an edible salt found in the food.

One aspect of the present disclosure includes a metering system for deriving a refined amount or a concentration of an edible salt dissolved in an aqueous solution of a food. The edible salt

25 preferably dissolved in the aqueous solution to form part of a pool of ion found in the aqueous solution. The system comprise (a) a sampling device comprising a body carrying a display unit of a display module on a planar surface of the body; an elongate probe extending from the body forming a free end thereof; an anode and a cathode respectively established around the free end of the probe, the anode and the cathode being spaced apart from one another on the probe and

30 configured to contact with the aqueous solution for deriving the amount of the salt, a power module resided inside the body being configured to provide an electrical current passing from the cathode to the anode through the aqueous solution in contact; a measuring module

incorporated to sample a raw value of the electrical conductivity; a microcontroller in communication with the measuring module to obtain and process the raw value; a first communication module for receiving the unrefined salt concentration from the microcontroller and transmitting the unrefined salt concentration wirelessly to a remotely located processor; (b) 5 a user terminal comprising an interface for receiving an input from a user, the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food, the user terminal being configured to transmit the input to the processor; and (c) a database storing a plurality of reference values each being associated with the name of the food, the ingredients of the food, volume of the aqueous solution, the database connecting to the 10 computing apparatus for providing the reference value to the processor upon receiving a request from the processor. The raw value of the electrical conductivity corresponds to a total number of ions present in the aqueous solution, and the processor computes the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value.

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In more embodiments of the disclosed system, the sampling device further comprises one or more button on the planar surface for the user to control operation of the device.

In some embodiments, the power module of the disclosed system comprises one or more 20 replaceable or rechargeable batteries.

In a number of embodiments, the sampling device of the disclosed system further comprises a first storage module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.

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In some embodiments, the processor and/or database of the disclosed system is physically incorporated or integrated into the user terminal.

For a number of embodiments, the user terminal of the disclosed system further comprises a 30 second storage module for keeping the database thereto. Preferably, the second storage module stores data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.

For more embodiments, the processor is configured to send out a notification to the user through the user terminal and/or the display unit when the refined amount of the edible salt of the food derived exceeds a predetermined first value.

- 5 For more embodiments, the processor is configured to record the refined amount of the edible salt of each food derived in a daily basis, sequentially count a total of the refined amount of the edible salt recorded and send out a notification to the user through the user terminal and/or the display unit when the total of the refined amount of the edible salt exceeds a predetermined second value. Preferably, the predetermined second value is adjustable by the user.

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- Another aspect of the present disclosure relates to a method for metering a refined amount or a concentration of an edible salt dissolved in an aqueous solution, forming part of a pool of ions, of a food. The disclosed method essentially comprises (a) bringing a sampling device having a body into contact with the aqueous solution, the sampling device comprising an anode and a cathode respectively established around a free end of a probe of the sampling device; (b) providing an electrical current from the cathode to the anode passing through the aqueous solution in contact using a power module of the sampling device; (c) obtaining a raw value of the electrical conductivity using a measuring module of the sampling device, the raw value of the electrical conductivity corresponds to a total number of the ions present in the aqueous solution; (d) processing the raw value to obtain a unrefined salt concentration through a microcontroller in communication with the measuring module; (e) transmitting the unrefined salt concentration wirelessly to a remotely located processor; (f) receiving an input at the processor from an input of a user through a user terminal, the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food; (g) acquiring a reference value based on the received input from a database by the processor, the database storing a plurality of the reference values each being associated with a name of a specific food, ingredients of a specific food, and/or volume of the aqueous solution of a specific food; and (h) computing the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value. Preferably, the processor and/or the database is incorporated or integrated into the user terminal.
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In some embodiments of the disclosed method, the sampling device further comprises a first storage module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.

- 5 Still, in some embodiments of the disclosed method, the user terminal further comprises a second storage module for keeping the database thereto.

In more embodiments, the disclose method further comprises sending a notification to the user through the user terminal and/or the display unit by the processor when the refined amount of
10 the edible salt of the food derived exceeds a predetermined first value.

For a number of embodiments, the disclosed system further comprises recording the refined amount of the edible salt of each food derived in a daily basis, counting a total of the refined amount of the edible salt recorded sequentially in a daily basis, and sending out a notification
15 to the user through the user terminal and/or the display unit by the processor when the total of the refined amount of the edible salt exceeds a predetermined second value. Preferably, the predetermined second value is adjustable.

Brief Description of Drawings

- 20 Fig. 1 is a perspective front view of one embodiments of a sampling device used in the disclosed metering system;

Fig. 2 is a back view of the sampling device shown in Fig. 1 with a cover being removed revealing the replaceable batteries employed in the power module;

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Fig. 3 is a schematic diagram illustrating some of the modules established in the sampling device and the user terminal of one embodiment of the disclosed system; and

Fig. 4 is a flowchart showing some of the steps performed in the disclosed method.

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Detailed Description

The preferred embodiment of the disclosure is now described with reference to the figures, where like reference numbers indicate identical or functionally similar elements. While specific configurations and arrangements are discussed, it should be understood that this is done for illustrative purposes only. A person skilled in the art will recognize that the other configurations and arrangements can be used without departing from the scope of the disclosure.

The term “edible salt” used herein throughout the specification shall refer to sodium chloride or other counterparts with identical or almost identical physiochemical properties unless mentioned otherwise. The edible salt may or may not contain additional seasoning compounds to enrich its flavour for cooking purposes.

In accordance with one aspect of the present disclosure, a metering system for deriving a refined amount or a concentration of an edible salt dissolved in an aqueous solution is described hereinafter. It is important to note that the edible salt, or sodium chloride, shall become soluble in the aqueous solution of the dish or food forming part of a pool of ions, which arise from ionization of some ingredients employed in preparing the dish. These ions, aside those dissociated from the edible salt, of the food may cause interference or disruption towards an EC reading for deriving or calculating the edible salt amount in conventional salt meter. The disclosed system generally comprises (a) a sampling device (1) comprising a body carrying a display unit (12) of a display module (18) on a planar surface of the body; an elongate probe (11) extending from the body forming a free end thereof; an anode (111) and a cathode (112) respectively established around the free end of the probe (11), the anode (111) and the cathode (112) being spaced apart from one another on the probe (11) and configured to contact with the aqueous solution for deriving the amount of the salt, a power module (19) resided inside the body being configured to provide an electrical current passing from the cathode (112) to the anode (111) through the aqueous solution in contact; a measuring module (16) incorporated to sample a raw value of the electrical conductivity; a microcontroller (17) in communication with the measuring module (16) to obtain and process the raw value; a first communication module for receiving the unrefined salt concentration from the microcontroller (17) and transmitting the unrefined salt concentration wirelessly to a remotely located processor (22); (b) a user terminal (2) comprising an interface for receiving an input from a user (3), the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food,

the user terminal (2) being configured to transmit the input to the processor (22); and (c) a database storing a plurality of reference values each being associated with the name of the food, the ingredients of the food, volume of the aqueous solution, the database connecting to the computing apparatus for providing the reference value to the processor (22) upon receiving a request from the processor (22). Accordingly, the raw value of the electrical conductivity corresponds to a total number of ions present in the aqueous solution. More preferably, the processor (22) computes the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value.

Fig. 1 and 2 illustrate one embodiment of the sampling device (1) of the disclosed system. The body is preferably an elongated planar piece having a top planar surface, a bottom planar surface, side facades and two ends. The body encloses a void space for accommodating various modules of the disclosed system. As in the setting forth, the top planar surface is embedded with the display unit (12) of the display module (18). The display unit (12) may be configured to show an operation menu of the sampling device (1). Particularly, the operation menu is a software application run by the microcontroller (17), which casts the software application onto the display unit (12) via the display module (18) connecting to it. The operation menu serves as a platform for the user (3) to change various setting of the sampling device (1) for improving the user experience, calculation of the salt concentration, ease of use, etc. In order the user to access the operation menu, the sampling device (1) further comprises one or more button (13) on the planar surface for the user to control operation of the device. The user can click on the button (13) according to a predefined manner to make the changes on the setting of one or more modules housed in the sampling device (1). Nonetheless, there are embodiments which the display unit (12) is capacitance touch screen without the need of the button (13) for the user to maneuver through the operation menu. As shown in Fig. 2, the power module (19) comprises one or more replaceable or rechargeable batteries (15). Particularly, a cavity is defined at the bottom planar surface that one or more replaceable batteries (15) can be into one or more slots carved thereto. A removeable cover (14) is used to shield the cavity when there is no need for batteries (15) replacement. A clip-on mechanism can be used to detachably secure the cover (14) onto the body in some of the embodiments.

Attention shall now draw to Fig. 3 illustrating a general architectural arrangement of various modules in the sampling device (1) and the user terminal (2) for the operation of the disclosed system. Particularly, the sampling device (1) comprises the measuring module (16), the microcontroller (17), the display module (18), and the power module (19). These modules can take the form of an integrated circuit, but not necessary, residing in the body of the sampling device (1). The microcontroller (17) is preferably in constant signal communication with other modules such that the operation of the sampling device (1) can be managed or regulated by the microcontroller (17) according to a firmware installed. The microcontroller (17) can be tasked for processing the raw value of the EC using a predefined conversion factor and/or formulation to compute and obtain an unrefined edible salt concentration or amount. The obtained unrefined edible salt concentration is then forwarded to the communication by the microcontroller (17) for being transmitted wirelessly to the processor (22) or the user terminal (2) which the processor (22) is integrated in some embodiments. The unrefined edible salt concentration may be shown on the display unit (12) for some embodiment of the disclosed system in addition to the refined amount calculated using the reference value kept in the database. As to the measuring module (16), the electrodes, anode (111) and cathode (112), built on the sampling device (1) form part of this module that the amount of the electrical current passed through the electrodes submerged in the aqueous solution shall correspond to the number of ions available in the aqueous solution. Thus, higher EC means greater number of ions, potentially originated from the edible salt, and vice versa. Furthermore, the power module (19) may include an auxiliary current control circuit or current controller to channel and regulate an electrical current flowing from the batteries (15) to the electrodes in addition to the replaceable or rechargeable batteries (15). Also, an ON/OFF switch of the power module (19) may be fabricated on the body of the sampling device (1) that the user can simply push the switch in an alternate manner to on and off the sampling device (1) to conserve the power of the batteries (15) in some embodiments. For more embodiments, the microcontroller (17) may be devised to automatically off the sampling device (1) when the microcontroller (17) detects that the sampling device (1) has not been use for a specific period of time. It is important to note that there are other modules available in some embodiments of the sampling device (1) and/or user terminal (2) not shown in Fig. 3. For instance, the button (13) for accessing the operation menu may belong to an auxiliary input module integrated into the sampling device (1). Similarly, the first communication module comprising a circuit being enabled for WIFI and/or NFC

communication for wireless transmission of data or data packet of the unrefined salt concentration or amount to the processor (22) is not shown in Fig. 3. Also, the sampling device (1) further comprises a first storage module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food in more embodiments of the disclosed system.

Pursuant to some preferred embodiments, the user terminal (2) can be a computing device such as smartphone, tablet, laptop or PC incorporated with the processor (22) and/or database. Referring again to Fig. 3, some of the modules required for the function of the user terminal (2) comprises a user interface (21), the processor (22), a second communication module (23), and a second storage module (24). These modules of the user terminal (2) may be driven by a mobile app or part of a mobile app developed to run a salt metering method, as further elaborated in the description below, at the user terminal (2). Preferably, the user interface (21) is a touchscreen applicable as an input means for the user to furnish input regarding the name of the food, the ingredients of the food, the size of the food and/or the taste of the food. The user interface (21) of the touch screen can be considered as an output means as well for displaying various information or results of the salinity test of the food to be consumed. The processor (22) can be a computing chip resided in the smart device implemented as the user terminal (2), while the second communication module (23) comprises the circuit needed for NFC and/or WIFI communication with the sampling device (1) for data transmission. For the second storage module (24), it can be used for keeping the database in several embodiments. The database may keep information in addition to the reference value. The information can be the name of the different food, the general ingredients used for food preparation, etc. This information is searchable by the user using the user interface (21) and selectable as the input for the processor (22) to compute the refined amount of the salt. Moreover, the reference value of each food or dish can be a baseline of the salt concentration or amount of each food or dish that the reference value is acquired by way of lab testing in some embodiments. For more embodiments, the reference value can be a baseline value of the salt content of a cooking ingredient that the processor (22) may sum up these baseline values of different ingredient input by the user to generate an aggregate reference value and subsequently employs the aggregate reference value in deriving the refined amount or concentration of the salt. The reference value or aggregate reference value may be implemented in a predetermined

formulation to correct deviation of the unrefined salt concentration or amount until deriving the refined salt concentration or amount. Preferably, the second storage module (24) stores data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.

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To avoid the user from consuming dishes or foods containing too much salt, the processor (22) is configured to send out a notification to the user through the user terminal (2) and/or the display unit (12) when the refined amount of the edible salt of the food derived exceeds a predetermined first value in some embodiments. The first value is a limit, which can be set by the user or a default value given by the disclosed system. Moreover, the disclosed system may be designed to have the processor (22) to record the refined amount of the edible salt of each food derived in a daily basis, count a total of the refined amount of the edible salt recorded and send out a notification to the user through the user terminal (2) and/or the display unit (12) when the total of the refined amount of edible the salt exceeds a predetermined second value. More preferably, the predetermined second value is adjustable by the user (3). For several embodiments, the notification can be delivered to a family member of the user through a mobile phone number and/or an email address registered to the disclosed system such that the family member can closely monitor salt consumption of the user to prevent any potential health issues triggered by excessive salt consumption.

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According to another aspect of the present disclosure, a method for metering a refined amount or a concentration of an edible salt dissolved in an aqueous solution, forming part of a pool of ions, of a food is provided. Particularly, the disclosed method can be implemented along with, but not necessary, with the utilization of the system disclosed. The disclosed method essentially comprises (a) bringing a sampling device (1) having a body into contact with the aqueous solution, the sampling device (1) comprising an anode (111) and a cathode (112) respectively established around a free end of a probe (11) of the sampling device (1); (b) providing an electrical current from the cathode (112) to the anode (111) passing through the aqueous solution in contact using a power module (19) of the sampling device (1); (c) obtaining a raw value of the electrical conductivity using a measuring module (16) of the sampling device (1), the raw value of the electrical conductivity corresponds to a total number of the ions present in the aqueous solution; (d) processing the raw value to obtain a unrefined salt concentration

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through a microcontroller (17) in communication with the measuring module (16); (e) transmitting the unrefined salt concentration wirelessly to a remotely located processor (22); (f) receiving an input at the processor (22) from an input of a user through a user terminal (2), the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food; (g) acquiring a reference value based on the received input from a database by the processor (22), the database storing a plurality of the reference values each being associated with a name of a specific food, ingredients of a specific food, and/or volume of the aqueous solution of a specific food; and (h) computing the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value. Fig. 4 is a simple flowchart summarizes essential steps of several embodiments of the disclosed method. In more specific, the method of these embodiment starts with deriving the unrefined salt concentration or amount (41), receiving an input of the food (42), obtaining a reference value associated to the food tested (44), and computing the refined salt concentration using both reference value and the unrefined salt concentration (43).

According to some of the embodiments, the disclosed method may feature a step to warn or notify the user be cautioned about consumption of the food when the food was found to have salt content exceeding a predefined limit or first value, which can be set by the user, or a default value given by the system. Nevertheless, the first value is adjustable by the user. Preferably, the disclosed method further comprises sending a notification to the user through the user terminal (2) and/or the display unit (12) by the processor (22) when the refined amount of the edible salt of the food derived exceeds a predetermined first value.

Similarly, the disclosed method can send out the warning or notification, when the daily salt consumption may possibly exceed a predefined limit or a second value, in view of the total of the refined amount or concentration of the edible salt of each food tested. The second value is a limit determined by the user or a default value given by the disclosed system used along with the disclosed method. Such feature reduces the risk of any potential health issue the user may be exposed in connection to high amount of salt consumption. can be avoided. In more specific, the disclosed method further comprises the step of recording the refined amount of the edible salt of each food derived in a daily basis, counting a total of the refined amount of the edible

salt recorded sequentially in a daily basis, and sending out a notification to the user through the user terminal (2) and/or the display unit (12) by the processor (22) when the total of the refined amount of the edible salt exceeds a predetermined second value. For more embodiments, the second value is adjustable by the user.

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For a number of embodiments of the disclosed method, the notification or warning may be delivered to an email address or mobile phone of one or more family members of the user in some embodiments of the disclosed method such that the family member can assist in monitoring the salt consumption of the user closely.

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Further, the sampling device (1) fused in the disclosed method may further comprise a first storage module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food. Likewise, user terminal (2) used in the disclosed method may further comprises a second storage module (24) for keeping the database thereto especially for those embodiments the processor (22) and/or database is incorporated into the user terminal (2).

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It is to be understood that the present disclosure may be embodied in other specific forms and is not limited to the sole embodiment described above. However, modification and equivalents of the disclosed concepts such as those which readily occur to one skilled in the art are intended to be included within the scope of the claims which are appended thereto.

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Claims

1. A metering system for deriving a refined amount or a concentration of an edible salt dissolved in an aqueous solution, forming part of a pool of ions, of a food comprising:
- (a) a sampling device (1) comprising a body carrying a display unit (12) of a display module (18) on a planar surface of the body; an elongate probe (11) extending from the body forming a free end thereof; an anode (111) and a cathode (112) respectively established around the free end of the probe, the anode (111) and the cathode (112) being spaced apart from one another on the probe (11) and configured to contact with the aqueous solution for deriving the amount of the salt, a power module (19) resided inside the body being configured to provide an electrical current passing from the cathode (112) to the anode (111) through the aqueous solution in contact; a measuring module (16) incorporated to sample a raw value of the electrical conductivity; a microcontroller (17) in communication with the measuring module (16) to obtain and process the raw value; a first communication module for receiving the unrefined salt concentration from the microcontroller (17) and transmitting the unrefined salt concentration wirelessly to a remotely located processor (22);
- (b) a user terminal (2) comprising an interface for receiving an input from a user, the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food, the user terminal (2) being configured to transmit the input to the processor (22);
- (c) a database storing a plurality of reference values each being associated with the name of the food, the ingredients of the food, volume of the aqueous solution, the database connecting to the computing apparatus for providing the reference value to the processor (22) upon receiving a request from the processor (22),
- wherein the raw value of the electrical conductivity corresponds to a total number of ions present in the aqueous solution, and the processor (22) computes the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value.
2. The system of claim 1, wherein the sampling device further comprises one or more button (13) on the planar surface for the user to control operation of the device.
3. The system of claim 1, wherein the power module (19) comprises one or more replaceable or rechargeable batteries (15).

4. The system of claim 1, wherein the sampling device (1) further comprises a first storage module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.
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5. The system of claim 1, wherein the processor and/or database is incorporated into the user terminal (2).
6. The system of claim 5, wherein the user terminal (2) further comprises a second storage module for keeping the database thereto.
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7. The system of claim 6, wherein the second storage module stores data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.
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8. The system of claim 1, wherein the processor is configured to send out a notification to the user through the user terminal and/or the display unit when the refined amount of the edible salt of the food derived exceeds a predetermined first value.
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9. The system of claim 1, wherein the processor is configured to record the refined amount of the edible salt of each food derived in a daily basis, sequentially count a total of the refined amount of the edible salt recorded and send out a notification to the user through the user terminal and/or the display unit when the total of the refined amount of the edible salt exceeds a predetermined second value.
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10. The system of claim 9, wherein the predetermined second value is adjustable by the user.
11. A method for metering a refined amount or a concentration of an edible salt dissolved in an aqueous solution, forming part of a pool of ions, of a food comprising:
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- (a) bringing a sampling device (1) having a body into contact with the aqueous solution, the sampling device (1) comprising an anode (111) and a cathode (112) respectively established around a free end of a probe (11) of the sampling device (1),

- (b) providing an electrical current from the cathode (112) to the anode (111) passing through the aqueous solution in contact using a power module (19) of the sampling device (1);
- (c) obtaining a raw value of the electrical conductivity using a measuring module (16) of the sampling device (1), the raw value of the electrical conductivity corresponds to a total
5 number of the ions present in the aqueous solution;
- (d) processing the raw value to obtain an unrefined salt concentration through a microcontroller (17) in communication with the measuring module (16);
- (e) transmitting the unrefined salt concentration wirelessly to a remotely located processor;
- (f) receiving an input at the processor (22) from an input of a user through a user terminal
10 (2), the input comprising any one or a combination of a name of the food, ingredients of the food and a taste of the food;
- (g) acquiring a reference value based on the received input from a database by the processor (22), the database storing a plurality of the reference values each being associated with a name of a specific food, ingredients of a specific food, and/or volume of the aqueous solution of a
15 specific food; and
- (h) computing the refined amount or concentration of the edible salt in the aqueous solution using both the unrefined salt concentration and the reference value.

12. The method of claim 11, wherein the sampling device further comprises a first storage
20 module for storing data relating to the derived refined amount or concentration of the salt, the raw value, the processed raw value, and/or input of the user of the food.

13. The method of claim 11 further comprising sending a notification to the user through the user terminal and/or the display unit by the processor when the refined amount of the edible
25 salt of the food derived exceeds a predetermined first value.

14. The system of claim 11 further comprising recording the refined amount of the edible salt of each food derived in a daily basis, counting a total of the refined amount of the edible salt recorded sequentially in a daily basis, and sending out a notification to the user through the
30 user terminal and/or the display unit by the processor when the total of the refined amount of the edible salt exceeds a predetermined second value.

15. The method of claim 14, wherein the predetermined second value is adjustable.