Annex 19

Guidelines for taster and panel leader training in the sensory assessment of table olives and panel management as well as general terms used in the sensory analysis of olive oil
Guidelines for taster and panel leader training in the sensory assessment of table olives and panel management according to standard COI/OT/IO Doc. No 1 - 2011

Purpose

The purpose of this document is to provide guidelines for the effective organisation of training for tasters and panel leaders in the sensory assessment of table olives.

Field of application

The guidelines are for the theoretical grounding and practical training of assessors in the sensory assessment of table olives according to method COI/OT/IO Doc. No 1 - 2011. The first part of the document covers the training of tasters and the second covers that of panel leaders.

NOTE: The guidelines do not deal with the assessment of perceptive ability. In the light of the latest scientific discoveries about the perceptive system and sensory analysis, it does not make practical or scientific sense to do so. In any case, it is a question that should be handled at the executive panel management stage as opposed to the training stage.

Tools

Types of classes
- Lectures;
- Practicals.
Types of teaching material
- written teaching aids
  printed course handouts, grouped by lesson
- audiovisual aids;
- explanatory transparencies
- practical flipchart
- teaching aids for practicals
  food items for oral kinaesthesia training
  standard table olives for description of vocabulary
  retail table olives for practical exercises
  material specified in the assessment method
Part One

Guidelines for training assessors in the sensory assessment of table olives

Programme

Introduction to the sensory assessment of table olives

Tools of sensory assessment: how they work
  Smell
  Taste
  Ordinary chemical sensitivity
  Kinaesthesia (texture)

Tools of sensory assessment: the learning process
  Smell: olfactory assessment of table olives and semantic description;
  Taste: gustatory assessment of table olives and semantic description;
  Ordinary chemical sensitivity: practical exercises
  Kinaesthesia (texture): practice in different types of sensitivity and monitoring.

Introduction to commercial classification of table olives according to the IOC standard (background)

Vocabulary for the sensory assessment of table olives:
  presentation and perception (practice using reference samples for each attribute)
    negative attributes
      abnormal fermentation (putrid, butyric, zapateria, etc.)
      musty
      rancid
      cooking effect
      soapy
      metallic
      earthy

    gustatory attributes
      salty (titrated aqueous solution + processed olives)
      bitter (titrated aqueous solution + processed olives)
      acid (titrated aqueous solution + processed olives)

    kinaesthetic or texture attributes
      hardness
      fibrousness
      crunchiness

Structured assessment scales: practical exercises

Table olive profile sheet

IOC method for table olive assessment
  Presentation
  Training
  Practicals
Final exam comprising a multiple-choice test (20 questions) and practical test in completing the profile sheet for three samples.

Duration
Three 8-hour days

Teaching aids
Printed handouts
Transparencies
Standard table olives
Carrots
Emmental cheese
Apple
Artichokes (boiled leaves and stalks)
Profile sheets
Blank sheets of paper
Plastic cups
Small plates
Paper napkins
Oil tasting glasses as per standard COI/T20/Doc. No 5
Part Two

Guidelines for training panel leaders in the sensory assessment of table olives

Programme

Introduction to the sensory assessment of table olives

IOC method for table olive assessment

Presentation

Vocabulary

negative attributes
  abnormal fermentation (putrid, butyric, zapatera, etc.)
  musty
  rancid
  cooking effect
  soapy
  metallic
  earthy

gustatory attributes
  salty
  bitter
  acid

kinaesthetic or texture attributes
  hardness
  fibrousness
  crunchiness

Table olive profile sheet

Application of the method

  Laboratory testing management: temperature and lighting
  Procedure for the classification of table olives in the quality categories

  Robust data processing: calculation software
  Structured assessment scales: training

  Commercial classification of table olives according to the IOC standard

Table olive sampling according to the IOC method

Sample preparation
  Definition of container sizes
  Sampling rules and methods:
    Individual
      Large containers
      Small containers
Batch
Large containers
Small containers

Preparation of samples in oil tasting glasses:
number of olives and covering liquid

Simulated preparation of a tasting session

Practicals
Final exam comprising a multiple-choice test (20 questions) plus a practical test in completing the profile sheet for three samples.

Duration
Five 8-hour days

Teaching aids
Printed handouts
Transparencies
Profile sheets
Blank sheets of paper
Standard table olives
Plastic cups
Small plates
Paper napkins
Oil tasting glasses as per standard COI/T20/Doc. No 5

PRINTED HANDOUTS for assessors: contents
Introduction to the sensory assessment of table olives
Sensory assessment tools: how they work
Smell
Taste
Ordinary chemical sensitivity
Kinaesthesia (texture)
Introduction to commercial classification of table olives according to the IOC standard (background)
Vocabulary for the sensory assessment of table olives:
negative attributes
gustatory attributes
kinaesthetic or texture attributes
Structured assessment scales: practical exercises
Table olive profile sheet
Appendices
IOC method for table olive assessment
Updated IOC table olive standard

PRINTED HANDOUTS for panel leaders: contents

Introduction to the sensory assessment of table olives
How sensory assessment tools work: practicals and coaching in smell, taste and kinaesthesia
Vocabulary for the sensory assessment of table olives:
Table olive profile sheet
Table olive sampling and preparation for analysis
Commercial classification of table olives
Background to production technology
Appendices
IOC method for table olive assessment
Updated IOC table olive standard
SENSORY ANALYSIS OF OLIVE OIL

STANDARD

SENSORY ANALYSIS: GENERAL BASIC VOCABULARY

1. PURPOSE

The purpose of this standard is to assemble the general terms used in sensory analysis and to give their definitions.

2. VOCABULARY

2.1. General terminology

Acceptability (noun)
State of a product favourably received by an individual or population in terms of its organoleptic attributes.

Acceptance (noun)
The act of an individual or population of favourably accepting a product.

Aspect (noun)
Combination of organoleptic attributes perceived visually: size, shape, colour, conformation, turbidity, cleanness, fluidness, foam and effervescence.

This term is to be preferred to the term appearance.

Attribute (noun)
A perceptible characteristic.
Compensation (noun)
Result of the interaction of a combination of stimuli in such a way that each one is perceived with less intensity than if it acted alone.

Discrimination (noun)
The act of qualitative and/or quantitative differentiation between two or more stimuli.

Expert (noun)
(With regard to the examination of organoleptic attributes)
Taster who is specialised in the sensory analysis of a specific product and has a basic understanding of the preparation of the product and market preferences.

Harmony (noun)
Attribute of a product which gives rise to an overall pleasant sensation. This sensation is produced by the perception of the product components as olfactory, gustatory, tactile and kinaesthetic stimuli because they are present in suitable concentration ratios.

Organoleptic (adjective) (attribute)
Describes an attribute of a product, perceptible by the sense organs.

Panel
Group of assessors who have been specially selected and trained and who assemble to perform the sensory analysis of the product under controlled conditions.

Perception (noun)
Sensory awareness of external objects or events.

Sensation (noun)
Subjective phenomenon resulting from the stimulation of a sensory system. This phenomenon can be subjectively discriminated or objectively defined by the sense organ involved, depending on the nature or kind of stimulus, and its intensity.

Sensitivity (noun)
Ability to perceive quantitatively and qualitatively a stimulus of little intensity or small differences between stimuli by means of the sense organs.
Sensory analysis (noun)
Examination of the organoleptic attributes of a product by the sense organs.

Taster (noun)
Perspicacious, sensitive, person who is selected and trained to evaluate the organoleptic attributes of a food with the sense organs.

Tasting (noun)
Operation which involves perceiving, analysing and judging the organoleptic attributes, particularly the olfactory, gustatory, tactile and kinaesthetic attributes of a food product.

1.2 Physiological terms:

Adaptation (noun)
Temporary modification of sensitivity in perceiving sensory stimuli due to continuous, repeated exposure to a given stimulus or one similar to it.

Body (noun)
Tactile sensation perceived in the mouth which gives a degree of density, viscosity, consistency or compactness to a product.

Compensation (noun)
Result of the interaction of a combination of stimuli in such a way that each one is perceived with less intensity than if it acted alone.

Contrast effect
Increase in response to differences between two simultaneous or consecutive stimuli.
Opposite of the convergence effect.

Convergence effect
Decrease in response to differences between two simultaneous or consecutive stimuli.
Opposite of the contrast effect.

Fragrance (noun)
Fresh, pleasant, delicious odour.
Gustatory (adjective)
Describes the attribute of a product which can stimulate the gustatory apparatus by awakening the sensations pertaining to one or more of the four primary tastes: sweet, salty, acid and bitter.

Inhibition (noun)
Lack of response by a sense organ or a part thereof, despite being subjected to the action of a suitable stimulus whose intensity is above the threshold.

Intensity (noun)
Magnitude of the energy of an attribute that can be measured in terms of a quantitative scale of values above the threshold.

Kinaesthesia
Sensations resulting from pressure on the sample produced by a movement in the oral cavity or with the fingers (for example: pressing cheese with fingers)

Objectivity (adjective)

a) Describes that which gives a true, verifiable representation of the object by minimizing the human factors (for instance, preference, habit, inclination).

b) Describes the technique which, either by means of sensory or instrumental methods, minimises self-induced errors.

Note: Use of the term “instrumental” as a synonym is not advised.

Olfaction (noun)
Function of the olfactory apparatus to perceive and discriminate between the molecules that reach it, in gas form from an external environment, directly or indirectly via the nose.

Receptor (noun)
Specific structure of a sense organ that can be excited and is capable of receiving a stimulus and converting it into a nervous discharge.

Note: Receptors are classified in terms of the type of energy associated with the stimulus (light, heat, sound, etc.)

Response (noun)
Action whereby the sensory cells respond to the action of one or more stimuli related to a given sense organ.
Sensory fatigue
Specific form of sensory adaptation in which a decrease in sensitivity occurs.

To smell (verb)
(active sense applied to smell). Describes the act of perceiving an odour.

Stimulus (noun)
Physical or chemical agent which specifically produces the response of the external or internal sensory receptors.

Subjective (adjective)
Describes that which produces a perception that is influenced not only by the stimulus but also by our way of thinking and feeling.

Synergic
Joint effect or action of given substances in which the intensity of the organoleptic attributes resulting from the combination is in excess of the sum of the intensities of each attribute taken separately.

Taste (noun) (Sense of taste)
Sense whose receptors are located in the mouth, particularly on the tongue, and which are activated by various compounds in solution.

Threshold (noun)

Absolute threshold
Minimum value of a sensory stimulus which gives rise to:
- the appearance of a sensation (stimulus threshold or detection threshold).
- or the identification of the sensation (recognition threshold).

Difference threshold
Minimum value of a sensory stimulus which gives rise to a perceptible difference in the intensity of the sensation.
Preference threshold

Minimum quantitative value of a stimulus or critical supra-threshold value of that stimulus at which an attraction or rejection response appears in relation to a neutral stimulus, for example, in the choice between a sugared solution and water.

Note: A distinction should be drawn between an absolute preference threshold and a differential preference threshold.

Sub-threshold (adjective)

Below the absolute threshold.

Supra-threshold (adjective)

Above the absolute threshold.

Terminal threshold

Maximum value of a stimulus above which an increase in intensity is not perceived.

2.3. Terminology related to organoleptic attributes

Acid (adjective)

a) Describes the primary taste produced by dilute aqueous solutions of most acid substances (for example, citric acid, lactic acid, tartaric acid).

b) Describes the attribute of pure substances or mixtures which produces this taste.

The corresponding noun is acidity.

After-taste; residual taste (noun)

Combination of sensations perceived after the stimulus has disappeared from the mouth and which differs from the sensations perceived beforehand.

Aroma (noun)

a) Pleasant sensations perceived indirectly by the olfactory organ when tasting a food.

b) In perfumery and non-specialised language, this term is also applied to the same sensations perceived directly through the nose.
Aromatic (adjective)
a) Describes the attribute of pure substances or mixtures which when tasted produce the sensations known as aroma.
b) Describes the products which when examined directly via the nose produce sensations of fragrance and freshness.

Astringent (adjective)
a) Describes the complex sensation produced in the mouth by a dilute aqueous solution of products such as tannins (for example, kaki tannins and sloe tannins).
b) Describes the attribute of pure substances or mixtures which produces this taste.

The corresponding noun is astringency.

Bitter (adjective)
a) Describes the primary taste produced by dilute aqueous solutions of various substances such as quinine, caffeine and given alkaloids.
b) Describes the attribute of pure substances or mixtures which produces this taste.

The corresponding noun is bitterness.

Flavour (noun)
Complex combination of olfactory and gustatory properties perceived during tasting. It may be influenced by tactile, thermal, painful and/or kinaesthetic effects.

Mouthwash (verb)
Action whereby a food present in the mouth comes into contact with all the sensitive areas of the mouth so that the buccal sensations it produces can be perceived.

Odour (noun)
a) Combination of sensations perceived by the olfactory organ on sniffing given volatile substances.
b) Attribute of the specific sensation produced by any one of the above substances.

Primary taste (noun)
Any one of the distinctive tastes of which there are held to be four: sweet, salty, acid, bitter.
Salty (adjective)

a) Characteristic sensation perceived by the sense of taste, the most typical example of which is produced by a sodium chloride solution.

b) Describes the attribute of pure substances or mixtures which produces this taste.

The corresponding noun is saltiness.

Sour (adjective)

Describes the olfactory-gustatory sensation in which acids generally produced by fermentation are predominant, as well as the foodstuffs that produce this sensation.

Some factors that contribute to this sensation are related to the fermentation, for example, the lactic or acetic fermentation, of a food product.

Sweet (adjective)

a) Describes the primary taste produced by aqueous solutions of various substances such as sucrose.

b) Describes the attribute of pure substances or mixtures which produces this taste.

The corresponding noun is sweetness.

Taste (noun)

a) Sensations perceived when the gustatory papillae are stimulated by some soluble substances.

b) Attribute of the specific sensation produced by such substances.

Texture (noun)

Characteristics of the solid or rheological state of a product, the combination of which can stimulate the mechanical receptors during tasting, particularly those located in the mouth.

Note: This term refers solely to the objective attributes, not to the sensations produced, which are designated by general terms such as consistency, fibrousness, greasiness, etc.

Note: This vocabulary may be enlarged by consulting ISO standards 5492, Parts I-V and other publications such as that by J.L. Magne entitled "Les cahiers techniques du Centre National de Coordination des Etudes et Recherches sur la Nutrition et l’Alimentation", etc.
Annex 20

IOC Tasting forms used in flavour assessment of Olive Oil and the Mario Solinas Quality Award of the International Olive Council International Competition for Extra Virgin Olive Oils Sensory Assessment Sheet
# Virgin Olive Oil Profile Sheet

## Olfactory-Gustatory-Tactile Notes

<table>
<thead>
<tr>
<th>Defect</th>
<th>Characteristics</th>
<th>Overall Mark Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Olive Fruity</td>
<td>9</td>
</tr>
<tr>
<td>Green (leaves, grass)</td>
<td>Weak freshness of olive type</td>
<td>8</td>
</tr>
<tr>
<td>Fruity</td>
<td>Rather imperfect freshness, omnolous colors and tastes</td>
<td>5</td>
</tr>
<tr>
<td>Considerable</td>
<td>Clearly imperfetc, unpleasant odours and tastes</td>
<td>4</td>
</tr>
<tr>
<td>Greasy and/or</td>
<td>Totally inedible, odours, tastes for consumption</td>
<td>3</td>
</tr>
<tr>
<td>Fruity</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other unallowable</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>attributes (Specify...)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Barely perceptible
2. Slight perceptible
3. Average
4. Great
5. Extremes

**Remarks:**

**Name of Assessor:**

**Legend of Sample:**

**Date:**
INTERNATIONAL OLIVE OIL COUNCIL (IOOC)

Profile Sheet

DEFECTS

Fusty
Musty - Humid
Winey - Vinegary
Acid - Sour
Muddy sediment
Metallic
Rancid
Other

POSITIVE ATTRIBUTES

Fruity
Bitter
Pungent

Name of Taster:
Sample Code: Date:
# SENSORY ASSESSMENT SHEET

**Olfactory sensations (maximum 35 points)**

<table>
<thead>
<tr>
<th>Olfactory Sensation</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive fruitiness</td>
<td>0–7</td>
</tr>
<tr>
<td>Other fruits</td>
<td>0–3</td>
</tr>
<tr>
<td>Green (grass/leaves)</td>
<td>0–2</td>
</tr>
<tr>
<td>Other positive sensations</td>
<td>0–3</td>
</tr>
<tr>
<td><strong>Harmony</strong></td>
<td>0–20</td>
</tr>
</tbody>
</table>

**Partial score**

**Gustatory-retro-nasal sensations (maximum 45 points)**

<table>
<thead>
<tr>
<th>Gustatory Sensation</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive fruitiness</td>
<td>0–10</td>
</tr>
<tr>
<td>Sweet</td>
<td>0–4</td>
</tr>
<tr>
<td>Bitter</td>
<td>0–3</td>
</tr>
<tr>
<td>Pungent</td>
<td>0–3</td>
</tr>
<tr>
<td>Green (grass/leaves)</td>
<td>0–2</td>
</tr>
<tr>
<td>Other positive sensations</td>
<td>0–3</td>
</tr>
<tr>
<td><strong>Harmony</strong></td>
<td>0–20</td>
</tr>
</tbody>
</table>

**Partial score**

**Final olfactory-gustatory sensation (maximum 20 points)**

<table>
<thead>
<tr>
<th>Sensation</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>0–10</td>
</tr>
<tr>
<td>Persistence</td>
<td>0–10</td>
</tr>
</tbody>
</table>

**Partial score**

**Category of fruitiness:**
- [ ] Green
- [ ] Ripe

**Total score**

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(1) **Harmony** increases when the attributes are balanced.
(2) **Complexity** increases with the number and intensity of aromas and flavours.
Annex 21

University of California Cooperative Extension Olive Oil Research Taste Panel and the University of California Davis Olive Oil Taste Panel Sensory Assessment Sheets
# UC Cooperative Extension 15 Point Olive Oil Profile Sheet

<table>
<thead>
<tr>
<th>TASTER:</th>
<th>DATE:</th>
<th>SAMPLE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aroma intensity:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>2. Bitterness:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>3. Pungency:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>4. Fruit intensity:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>5. Total flavor intensity:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>6. Sweetness:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>7. Astringency:</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</td>
<td></td>
</tr>
<tr>
<td>8. Texture:</td>
<td>thin (1) medium (2) thick (3) greasy (1) waxy (1)</td>
<td></td>
</tr>
<tr>
<td>9. Defects:</td>
<td>Rancid:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fusty – Muddy S:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Musty:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Winey:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

## Positive Flavor Descriptors:

<table>
<thead>
<tr>
<th>slight (1)</th>
<th>moderate (2)</th>
<th>strong (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ripe olive fruit</td>
<td>ripe olive fruit</td>
<td>ripe olive fruit</td>
</tr>
<tr>
<td>nutty</td>
<td>nutty</td>
<td>nutty</td>
</tr>
<tr>
<td>floral</td>
<td>floral</td>
<td>floral</td>
</tr>
<tr>
<td>buttery</td>
<td>buttery</td>
<td>buttery</td>
</tr>
<tr>
<td>tropical</td>
<td>tropical</td>
<td>tropical</td>
</tr>
<tr>
<td>banana</td>
<td>banana</td>
<td>banana</td>
</tr>
<tr>
<td>other (specific)</td>
<td>other (specific)</td>
<td>other (specific)</td>
</tr>
<tr>
<td>green olive fruit</td>
<td>green olive fruit</td>
<td>green olive fruit</td>
</tr>
<tr>
<td>grass (fresh cut)</td>
<td>grass (fresh cut)</td>
<td>grass (fresh cut)</td>
</tr>
<tr>
<td>artichoke</td>
<td>artichoke</td>
<td>artichoke</td>
</tr>
<tr>
<td>herbaceous</td>
<td>herbaceous</td>
<td>herbaceous</td>
</tr>
<tr>
<td>green apple</td>
<td>green apple</td>
<td>green apple</td>
</tr>
<tr>
<td>green banana</td>
<td>green banana</td>
<td>green banana</td>
</tr>
<tr>
<td>green tea</td>
<td>green tea</td>
<td>green tea</td>
</tr>
<tr>
<td>mint</td>
<td>mint</td>
<td>mint</td>
</tr>
<tr>
<td>eucalyptus</td>
<td>eucalyptus</td>
<td>eucalyptus</td>
</tr>
<tr>
<td>tomato leaf</td>
<td>tomato leaf</td>
<td>tomato leaf</td>
</tr>
<tr>
<td>spice (specific)</td>
<td>spice (specific)</td>
<td>spice (specific)</td>
</tr>
<tr>
<td>wood/hay/staw</td>
<td>wood/hay/staw</td>
<td>wood/hay/staw</td>
</tr>
<tr>
<td>other (specific)</td>
<td>other (specific)</td>
<td>other (specific)</td>
</tr>
</tbody>
</table>

## Complexity:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

## Balance:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

## Freshness:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

## Overall Quality:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

poor fair good very good excellent

15. Comments: ____________________________
## Olive Oil Scorecard

**Name____________________**

**UC Davis Olive Oil Taste Panel**

### Oil code__________________

#### Intensity of perception of defects:
- Fusty/muddy sediment
- Musty-humid-earthy
- Winey-vinegary-acid-sour
- Metallic
- Rancid
- Others (specify)

#### Intensity of perception of positive attributes:
- Fruity
  - Ripe fruit
  - Green fruit
  - Bitter
  - Pungent

<table>
<thead>
<tr>
<th>Scale</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

### Integrative measures

- Total aroma intensity________
- Total flavor intensity________

### Aroma and flavor descriptors

#### Ripe fruit
- Ripe olive________
- Ripe banana________
- Ripe apple________
- Floral________
- Nutty________
- Buttery________
- Avocado________
- Tropical-pineapple________
- Apricot/peach________

#### Green fruit
- Green grass/freshly cut grass________
- Green banana________
- Green olive________
- Tomato leaf________
- Artichoke________
- Green tea________
- Herbaceous/stemmy________
- Minty/eucalyptus________
- (Fresh) green vegetables________
- Pine________
- Bitter greens/nettle________
- Green almond________

### Others