

## **Quadrant II – Notes**

**Programme:** BSc. (Hons.) Agri.

**Subject:** Horticulture

**Course Code:** HORT-111

**Course Title:** Fundamentals of Horticulture

**Module Name:** Horticultural and botanical classification

**Module No:** 2

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**Notes :**

### **Horticultural and botanical classification**

#### **Why classification?**

- Classification is grouping of samples on the basis of the features they have in common
- Classification is an important process for taxonomy
- Different basis for identification, breeding and production
- Basis for selection of crops

#### **Basis of classification**

- 1) On the basis of duration of life/life span
- 2) On the basis of climatic requirements
- 3) On the basis of growth habit and physiological characters
- 4) On the basis of plant parts used for consumption
- 5) On the basis of whether leaves are shed during the year
- 6) On the basis of longevity
- 7) Botanical classifications

- 1) On the basis of duration of life/life span:

- **Annuals:** Plants which complete their life cycle in one season or one year are called as annuals. e.g. Tomato, Balsam, Marigold etc.
- **Biennials:** Plants which complete their life cycle in two seasons or two years are known as biennials. e.g. Onion, Cabbage, Tuberose etc.
- **Perennials:** Plants which require more than two years to complete their life cycle are called perennials. The perennials necessarily do not die after flowering.

## 2) On the basis of climatic requirements

- ❖ **Temperate region crops:** the temperature in winter season falls below freezing point in temperate region. Crops need chilling temperatures for new growth, flowering and fruiting. e.g. apple, pear, almond, walnut, cabbage, cauliflower, European varieties of carrot and radish, etc.
- ❖ **Sub-tropical crops:** characterized with dry and warm. eg. citrus, guava, pomegranate, fig, tomato, potato etc.
- ❖ **Tropical crops:** The climatic conditions are hot and humid eg. mango, banana, pineapple, sapota, black pepper, turmeric, ginger, cloves, coconut, arecanut, cocoa etc.

## 3) On the basis of growth habit and physiological characters

- ❖ **Trees:** Plants have a distinct stem or trunk e.g. citrus, guava, mango etc.
- ❖ **Herbaceous trees:** These have soft succulent stems eg. banana, pineapple, strawberry.
- ❖ **Shrubs:** Shrubs or bushes produce a large number of branches. eg. phalsa, coffee, acalypha etc.
- ❖ **Climbers:** Plants require supports eg. grapes, black pepper

## 4) On the basis of plant parts used for consumption

1. **Apple (Pome):** Fleshy thalamus

2. **Banana (Berry)** Mesocarp and endocarp

3. **Cashew nut (nut)** Peduncle and cotyledons
4. **Coconut (Fibrous drupe)** Endosperm
5. **Custard apple (Etaerio of berries)** Fleshy pericarp of individual berries
6. **Fig (Syconus)** Fleshy receptacle
7. **Guava (Berry)** Thalamus and pericarp
8. **Grape (Berry)** Pericarp and placentae
9. **Mango (Drupe)** Mesocarp
10. **Orange (Hesperidium)** Juicy placental hair
11. **Papaya (Berry)** Mesocarp
12. **Pineapple (Sorosis)** Fleshy thalamus
13. **Pomegranate (Pome)** Aril

Plantation crops

1. **Coconut (Fibrous drupe)** =Endosperm
2. **Arecanut (one-seeded ovoid drupe)** =Seed (Fresh and dried)
3. **Cocoa (5-ribbed drupe)** =Beans (Seeds)
4. **Coffee (Fleshy Drupe)**= Seed (Bean)
5. **Black pepper (One-seeded spherical dupe)** =Dried wrinkled fruit
6. **Clove (Fleshy drupe)**= Unopened flower bud
7. **Cinnamon (Fleshy berry)** =Bark
8. **Chilli (berry)**= Fruit and seeds
9. **Turmeric** =Rhizome
10. **Onion** =Leaves and Bulb
11. **Garlic** =Cloves

## Vegetables

1. Radish, Carrot, Turnip, Beetroot, Sweet potato= **Roots**

2. Knolkhol, Potato =**Stem**

3. Palak, Methi, Amaranthus =**Leaf**

4. Cauliflower, Broccoli =**Flower**

5. Tomato, Brinjal, Okra, Cucurbits =**Fruit**

6. Beans and Pea =**Pod**

7. Onion =**Blub**

5) On the basis of whether leaves are shed during the year

- **Deciduous:** shed their leaves during winter e.g. Apple, Fig, Grape etc.
- **Evergreen:** grow continuously all the year round e.g. Arecanut, Coconut, Banana, Mango, Sapota etc.

6) On the basis of longevity

a) **1000 years** : Sweet chestnut

b) **100-300 years** : Walnut

c) **50-100 years** : Persimmon, Avocado

d) **30-70 years** : Apricot, Fig

e) **20-40 years** : Peach, Plum, Pomegranate

f) **25-30 years** : Currant, Gooseberry and Raspberry

g) **4-5 years** : Strawberry

7) Botanical classifications

Sr. no.	Crop	Botanical name	Family
1.	Mango	<i>Mangifera indica L.</i>	Anacardiaceae
2.	Banana	<i>Musa paradisica</i>	Musaceae

3.	Aonla	<i>Emblica officinalis</i>	Euphorbiaceae
4.	Mandarin (Santra)	<i>Citrus reticulate</i>	Rutaceae
5.	Sweet orange	<i>Citrus sinensis</i>	Rutaceae
6.	Lime	<i>Citrus aurantifolia</i>	Rutaceae
7.	Guava	<i>Psidium guajava</i>	Myrtaceae
8.	Sapota	<i>Manilkara achrus</i>	Saptaceae
9.	Jackfruit	<i>Artocarpous heterophyllus</i>	Moraceae
10.	Grapes	<i>Vitis vinifera L.</i>	Vitaceae
11.	Papaya	<i>Carica papaya</i>	Caricaceae
12.	Pineapple	<i>Annanas comosus</i>	Bromeliaceae
13.	Pomegranate	<i>Punica granatum</i>	Punicaeae
14.	Plums	<i>Prunus domestica</i>	Rosaceae
15.	Pear	<i>Pyrus communis</i>	Rosaceae
16.	Peach	<i>Prunus persica L.</i>	Rosaceae
17.	Apple	<i>Malus x domestica</i>	Rosaceae
18.	Litchi	<i>Litch chinensis</i>	Sapindaceae
19.	Almond		
20.	Walnut	<i>Juglans regia</i>	Juglandaceae
21.	Ber	<i>Ziziphus mauritiana Lam.</i>	Rhamnaceae

### Vegetables

Sr. no.	Common name	Botanical Name/family
1	<b>Tomato</b>	<i>Solanum lycopersicum/ Solanaceae</i>
2	<b>Brinjal</b>	<i>Solanum melongena/ Solanaceae</i>
3	<b>Chilli</b>	<i>Capsicum annum/ Capsicum frutescens/ Solanaceae</i>

4	<b>Okra</b>	<i>Abelmoschus esculentus</i> / Malvaceae
5	<b>Cucumber</b>	<i>Cucumis sativus</i> / Cucurbitaceae
6	<b>Water melon</b>	<i>Citrullus lanatus</i> / Cucurbitaceae
7	<b>Snap Melon</b>	<i>Cucumis melo momordica</i> / Cucurbitaceae
8	<b>Bitter gourd</b>	<i>Momordica charantia</i> / Cucurbitaceae
9	<b>Ridge gourd</b>	<i>Luffa acutangula</i> / Cucurbitaceae
10	<b>Snake gourd</b>	<i>Trichosanthes anguina</i> / Cucurbitaceae
11	<b>Musk Melon</b>	<b><i>Cucumis melo</i>/ Cucurbitaceae</b>
12	<b>Potato</b>	<i>Solanum tuberosum</i> / Solanaceae
13	<b>Cabbage</b>	<i>Brassica oleracea</i> var. <i>capitata</i> / Brassicaceae
14	<b>Cauliflower</b>	<i>Brassica oleracea</i> var. <i>botrytis</i> / Brassicaceae
15	<b>Onion</b>	<i>Allium cepa</i> / Alliaceae
16	<b>French bean</b>	<i>Phaseolus vulgaris</i> / Alliaceae
17	<b>Dolichus bean</b>	<i>Lablab purpureus</i> / leguminaceae
18	<b>Cowpea</b>	<i>Vigna unguiculata</i> / leguminaceae
19	<b>Yard long bean</b>	<i>Vigna unguiculata</i> ssp. <i>Sesquipedalis</i> / leguminaceae
20	<b>Sweet potato</b>	<i>Ipomoea batatas</i> / <a href="#">Convolvulaceae</a>
21	<b>Radish</b>	<i>Raphanus raphanistrum</i> subsp. <i>Sativus</i> / Brassicaceae
22	<b>Beet root</b>	<i>Beta vulgaris</i> / Chenopodiaceae
23	<b>Amaranthus</b>	<i>Amaranthus caudatus</i> / <i>Amaranthus viridis</i> / Amarathaceae

**Monocot: Areaceae** Colocassia, **Alliaceae:**Onion, Garlic

**Dicot: i) Chenopodiaceae** – Spinach.

**ii) Cruciferae** – Cole crops, Turnip, Radish.

**iii) Leguminosae** – Pea, Beans, Fenugreek.

**iv) Euphorbiaceae** – Tapioca.

**v) Malvaceae** – Okra.

**vi) Umbelliferae** – Carrot.

**vii) Convolvulaceae** – Sweet potato.

**viii) Solanaceae** – Tomato, Brinjal, Chilli, Potato.

**ix) Cucurbitaceae** – Gourds, Melons, Pumpkin.

**x) Compositae** – Lettuce

Spices

Crop	Botanical name	Family
Allspice	Pimenta dioica	Myrtaceae
Black pepper	Piper nigrum	Piperaceae
Coriander	Coriandrum sativum L.	Apiaceae
Cardamom	Elattaria cardamomum	Zingiberaceae
Ginger	Gingiber officinale L.	Zingiberaceae
Turmeric	Curcuma longa L.	Zingiberaceae
Fennel	Foeniculum vulgare	Apiaceae
Cumin	Cuminum cyminum	Apiaceae
Fenugreek	Trigonella Foenumgraecum L.	Leguminaceae
Ajwain	Trachyspermum ammi	Apiaceae

**Aromatic and Medicinal plants**

Sl. No.	Scientific name	Common name
1	Abelmoschus moschatus	Ambrette
2	Artemisia pallens	Davana
3	Cymbopogon flexuosus	Lemongrass
4	Cymbopogon martinii Var. Motia	Palmarosa
5	Cymbopogon winterianus	citronella
6	Jasminum spp	jasmine
7	Lavendula officinalis	lavender
8	Matricaria chamomilla	Chamomile

<b>9</b>	Mentha arvensis, M. piperita, M. spicata	Mint
<b>10</b>	Ocimum basilicum	Basil
<b>11</b>	Ocimum sanctum	Sacred basil' or `Holy basil'
<b>12</b>	Pelargonium graveolens	Geranium
<b>13</b>	Pogostemon patchouli	Patchouli
<b>14</b>	Rosa damascena	Damask rose or Bulgarian rose
<b>15</b>	Rosmarinus officinalis	Rosemary
<b>16</b>	Santalum album	sandal wood
<b>17</b>	Vetiveria zizaniodes	Vetiver / Khus

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