
EXERCISE 24 MONOCOT FAMILIES

Date

Session #

Time allocated – 2 Hours

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Have you read this exercise before coming for the lab. session? Please do read.



Hope you have not forgotten to put on your lab. coat while working in the lab.

24.1 INTRODUCTION

After having made a detailed study of some dicot families, you will study a few families of monocots in this exercise. The monocots are a much smaller group with very distinctive characters. You have studied two monocot families – Poaceae and Liliaceae in the LSE-08(L) Course. And in Exercise # 22, you also recalled the characters of these two families. In this exercise, you will study three more monocot families in the same way as you studied the dicot families in Exercise # 23. *You will describe at least two specimens belonging to different genera of each family, except Cannaceae which is monogeneric.* This will enable you to select the common features of the specimens, which may also be the diagnostic characters of the family.

The three families selected for this exercise are not covered in the corresponding theory course. This has been done deliberately. The reason for this is to give you an opportunity and some challenge to try out the families not studied earlier.

Having completed the Exercises # 22 and # 23 and with the Identification Key and Glossary (Block 2B), you may not find it difficult to handle these families. Nevertheless, the worksheets for the respective families would give you additional guidance of the study-route.

Objectives

After completing this exercise, you should be able to:

- distinguish the monocot families from the dicot families;
- list the common diagnostic characters of the given family members; and
- identify, with ease, the other members of these three monocot families.

Study Guide

See the details given in Exercise # 23 again before you begin your work for this exercise.

24.2 . MATERIALS AND GUIDELINES

Given below is the list of requirements along with the additional guidelines for study.

Materials required

Items i) to viii) as given in Exercise # 23 are required for this exercise too. For item ix), the flowering and fruiting twigs belonging to two different genera of each of the following families are required: Commelinaceae and Amaryllidaceae; and one of family Cannaceae.

A list of suggested materials is given below. However, you are free to select any two materials for each family that are easily available in your locality.

1. Family Commelinaceae

Commelina sp.
Tradescantia virginiana
Zebrina sp.
Rhoeo sp.

2. Family Amaryllidaceae

Crinum sp.
Zephyranthes sp.
Pancratium sp.

3. Family Cannaceae

Canna indica

Procedure

Same as in Exercise # 23.

Observations and Interpretations

After describing the twigs given to you, select the common diagnostic characters and note them in their respective worksheets. Based on these characteristics, identify the families of the plants studied with the help of 'Identification Key' in the same manner as in the previous two exercises. Though the names of the families of the genera that you are going to study would be known to you, the whole idea of this exercise is to make you practise the identification method. What is important in this practice is that you may be able to reason out as to why the members of the family X belong to this very family, and not to the family Y or Z. Gaining confidence with the correct use of this method would enable you to handle any sort of material(s) or unfamiliar family(ies) with the same ease.

Your Notes

Worksheet # 24.1: Study of specimen A.

Botanical name
Common name(s)
.....

Habit:

Stem:

Leaf:

Inflorescence:

Flower:

 Calyx:

 Corolla:

 Androecium:

 Gynoecium:

 Ovary:

 Style:

 Stigma:

Fruit:

Any other feature(s):

Habit:

Stem:

Leaf:

Inflorescence:

Flower:

 Calyx:

 Corolla:

 Androecium:

 Gynoecium:

 Ovary:

 Style:

 Stigma:

Fruit:

Any other feature(s):

Q.1: List the common diagnostic characters of specimens A and B.

- (i)
- (ii)
- (iii)
- (iv)
-
-

Q.2: Classification and identification of the family of specimens A and B from the Identification Key (Block 2B) giving reasons.

Class:

- Characters: i)
- ii)
-
-

Subclass:

- Characters: i)
- ii)
-
-

Series:

- Characters: i)
- ii)
- iii)
- iv)
-
-

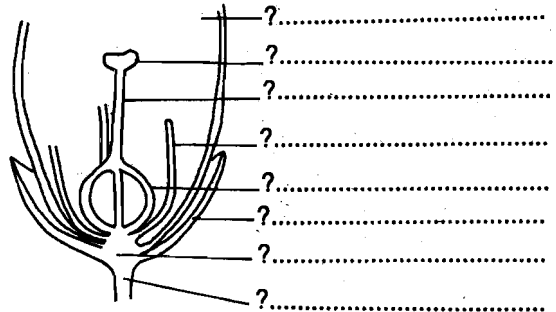
Family: Commelinaceae

- Characters: i)
- ii)
- iii)
- iv)
-
-

Q.3: List some species of family Commelinaceae growing in your area.

.....

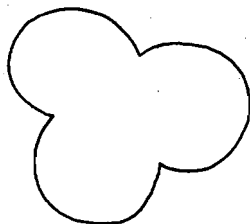
Diagram space



Q.5: Complete and label the above diagram of a flower (of Commelinaceae) cut in the median longitudinal plane.

Diagram space

Q.4: Represent the habit of specimen A/B diagrammatically. The name of the specimen is

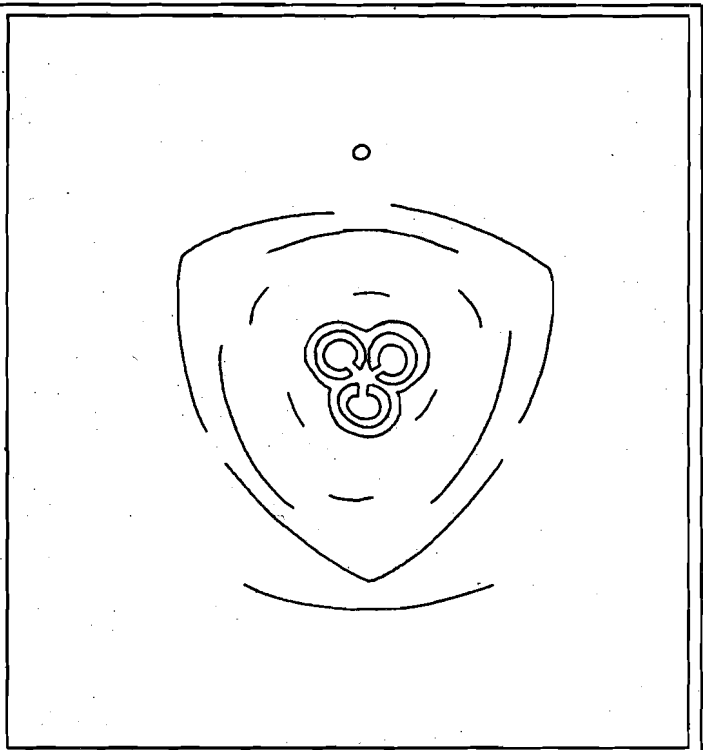
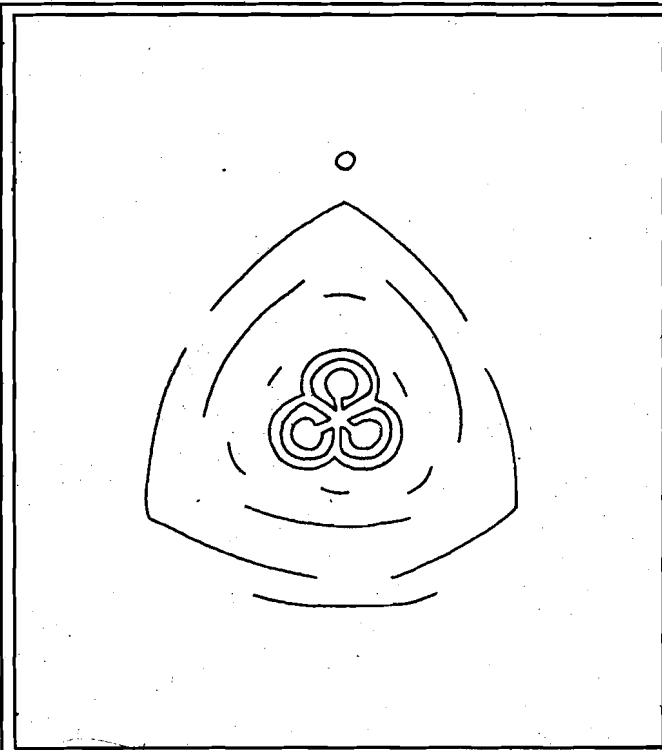


Q.6: Make outline diagrams of fertile or sterile stamens of specimen A/B. The name of the specimen is

Q.7: Complete and label the adjacent diagram of t.s. ovary. The name of the plant is

.....

(Cont.)



Q.8a: Complete the floral diagram of

 (*name of specimen A*)

Q.8b: Complete the floral diagram of

 (*name of specimen B*)

Q.9a: Write the floral formula of specimen A.

Name of the plant:

Floral formula:

9b) Write the floral formula of specimen B.

Name of the plant:

Floral formula:

Your Notes

24.4 FAMILY AMARYLLIDACEAE

Worksheet # 24.4: Study of specimen A.

Botanical name
Common name(s)
.....

Habit:

Stem:

Leaf:

Inflorescence:

Flower:

Perianth:

Androecium:

Gynoecium:

Ovary:

Style:

Stigma:

Fruit:

Any other feature(s):

Botanical name

Common name(s)

.....

Habit:

Stem:

Leaf:

Inflorescence:

Flower:

Perianth:

Androecium:

Gynoecium:

Ovary:

Style:

Stigma:

Fruit:

Any other feature(s):

Q.1: List the common diagnostic characters of specimens A and B.

- (i)
- (ii)
- (iii)
- (iv)
- (v)
- (vi)

Q.2: Classification and identification of the family of specimens A and B from the Identification Key (Block 2B, of this course) giving reasons.

Class:

Characters: i)

ii)

Series:

Characters: i)

ii)

iii)

iv)

v)

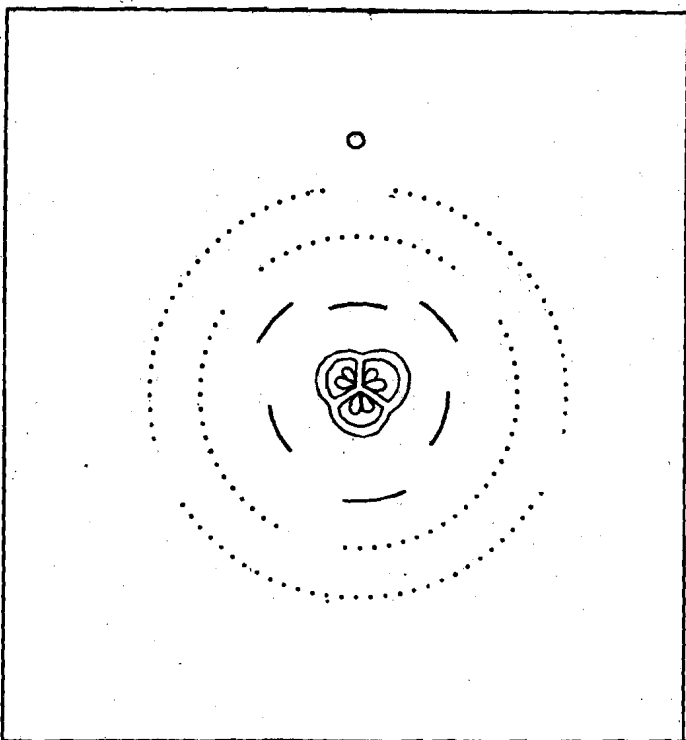
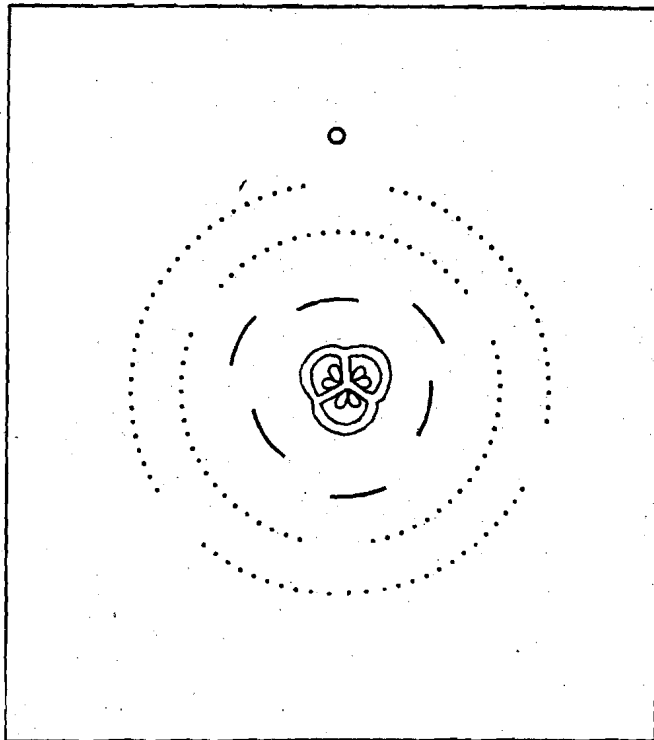
Family: Amaryllidaceae

Characters: i)

ii)

iii)

Higher Plants



Q.8a: Complete the floral diagram of

 (*name of specimen A*)

Q.8b: Complete the floral diagram of

 (*name of specimen B*)

Q.9a: Write the floral formula of specimen A.

Name of the plant

Floral formula

Q.9b: Write the floral formula of specimen B.

Name of the plant

Floral formula

Your Notes

24.5 FAMILY CANNACEAE

Worksheet # 24.7: Study of specimen A.

Botanical name: *Canna indica*

Common name(s)

.....

Habit:

Stem:

Leaf:

Inflorescence:

Flower:

 Calyx:

 Corolla:

 Androecium:

 Gynoecium:

 Ovary:

 Style:

 Stigma:

Fruit:

Any other feature(s):

Q.1: Classification and identification of the family from the Identification Key (Block 2B) giving reasons.

Class:

Characters: i)

ii)

Series:

Characters: i)

ii)

iii)

iv)

Family: Cannaceae

Characters: i)

ii)

iii)

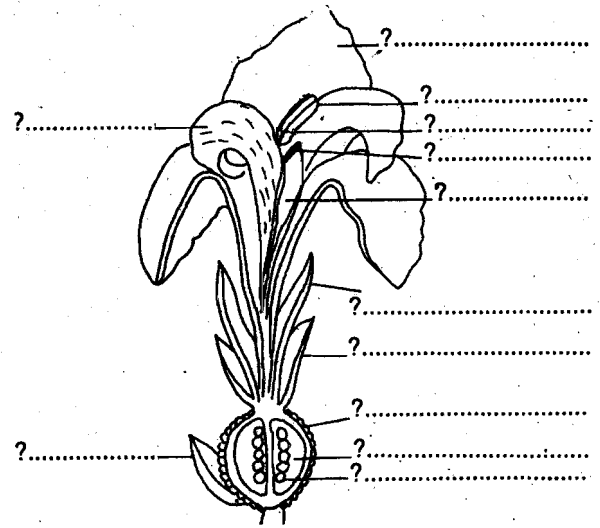
Q.2: List the species of the family Cannaceae from your local flora. Write their common names as well as the botanical names.

.....
.....
.....
.....

(Cont.)

Your Notes

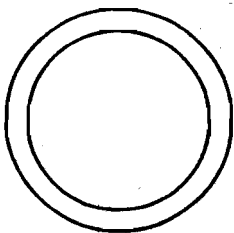
Diagram space



Q.5: Complete and label the above schematic diagram of a flower of family Cannaceae cut in the median longitudinal plane.

Diagram space

Q.4: Represent the habit of specimen A diagrammatically. The name of the plant specimen represented is



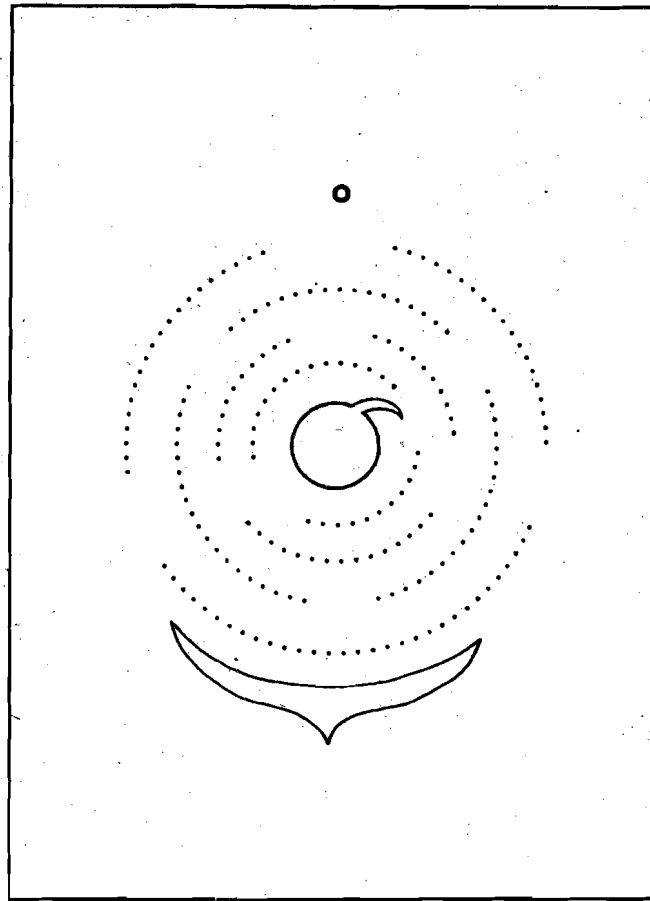
Q.7: Complete and label the above diagram of t.s. ovary.

(a) Sterile stamen

(b) Fertile stamen

Q.6a,b: Make outline diagrams of a sterile (a) and a fertile stamen (b), and label their different parts.

(Cont.)



Q.8: Complete the floral diagram of the given specimen.

Q.9: Write the floral formula of specimen.

Name of the plant:

Floral formula:

Your Notes