STUDY NO.: 03

NAME OF THE STUDY: STUDY ON THE EXTERNAL MORPHOLOGY OF A RICE PLANT

(Gramineae/ Poaceae family)

Bengali name: Dhan

English name: Rice

Scientific name:*Oryza sativa*

Family: Gramineae (Poaceae)

Habit: An annual cultivated herb.

Root: Root system divided into two parts, seminal or fibrous and secondary or adventitious root also develop from the basal node of the stem, branched.

Stem: Stem erect, culm (jointed stem), cylindrical with solid nodes & hollow internodes. Lower internodes are shortened than upper one (5 to 6 nodes), branching by tillers.

Leaf: Simple, sessile, alternate, distichous. The no. of leaves is greatest on the main culm and then decrease with raise in tiller order. The first leaf is bladeless known as prophyll. The topmost leaf is called flag leaf. The flag leaf encloses the inflorescence. Leaf is divided into two parts:

i) leaf blade- long, narrow, lanceolate, pubescent, acuminate, parallel venation with a distinct midrib.

ii) leaf sheath- encircles the stem.

At the junction of the leaf blade and leaf sheath there is a thin, membranous, colorless structure called ligule. Two hairy structures called auricles present at both ends of the junction.

Inflorescence: Panicle of spikelets (unit of inflorescence in gramineae).The rachis bear primary branch, primary branch bears secondary branch, each secondary branches bear one or more spikelet, compact or loose.

Spikelet: Spikelets borne eighter singly on the end of the branches. Generally single flowered, very rarely two flowered.Short pedicellate. Each spikelet includes 2 empty glumes at the base, the lower one is first glume and the next is second glume and a floret.

Floret: Each floret consists of lemma, palea and a flower. The lemma is larger, boat shaped strongly 5 nerved. Palea narrower than lemma, 3 nerved, inserted into the open part of the lemma.

Flower: Incomplete, bracteate, zygomorphic, bisexual, hypogynous, sessile and irregular. It includes perianth, androecium and gynoecium.

Perianth: The perianth is represented by two broad, thick and transparent lodicules.

Androecium: Stamens-6 arranged in two whorls, filament long, slender and free, anther bi-celled, versatile.

Gynoecium: Monocarpellary, ovary obovate, unilocular, smooth, superior, style very much reduced, stigma bifurcated and feathery, placentation basal.

Fruits: Caryopsis

Floral formula: Br. % ♀ $P_{2(lodicules)}A_{3+3}\underline{G}_{1}$

Family identifying characters:

→ Stem culm
→ Perianth scale-like
→ Inflorescence spikelet
→ Anthers versatile
→ Basal placentation
→ Fruit caryopsis
→ Stigmas feathery

Other species:

Rice : *Oryza sativa*-cereal edible
Maize : *Zea mays*-cereal edible
Barley : *Hordeum vulgare*-cereal edible
Sugarcane : *Saccharum officinarum*
Wheat : *Triticum aestivum*-cereal edible

Book references:

1. A. C. Datta, Botany for Degree Students. Oxford University Press.
2. College Botany, H. C. Gangulee.
3. Modern Practical Botany (Vol-II), B. P. Pandey

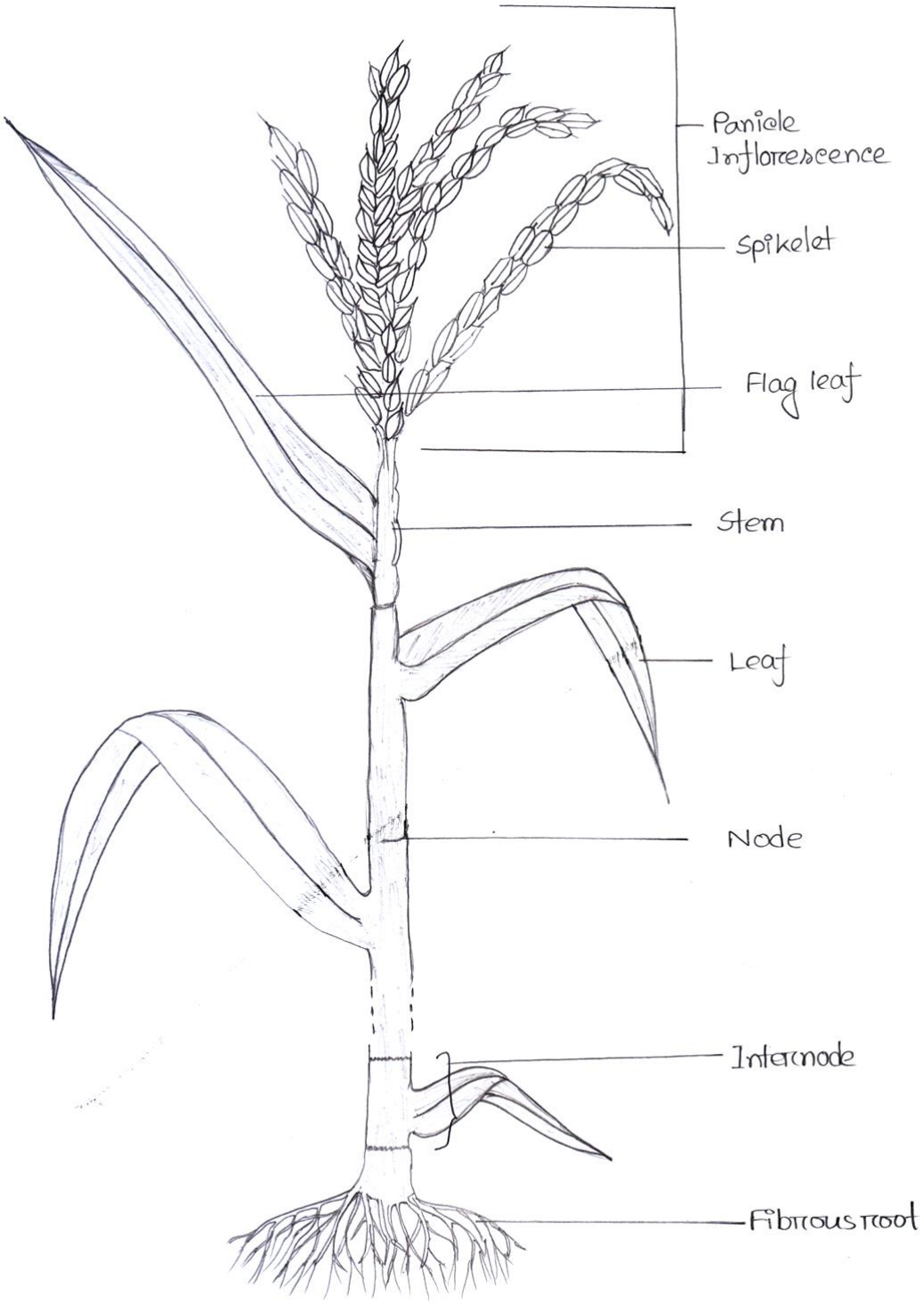

Figure : Flowering plant of rice.

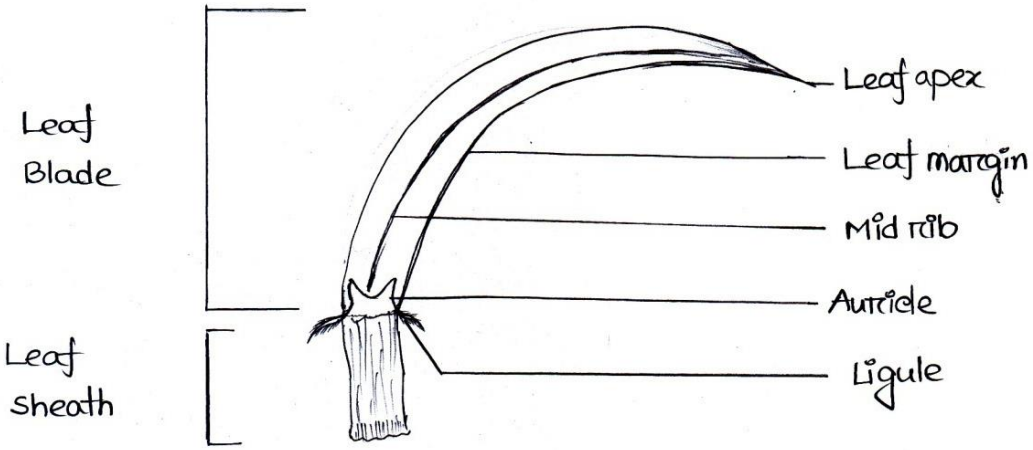

Fig: A leaf of rice

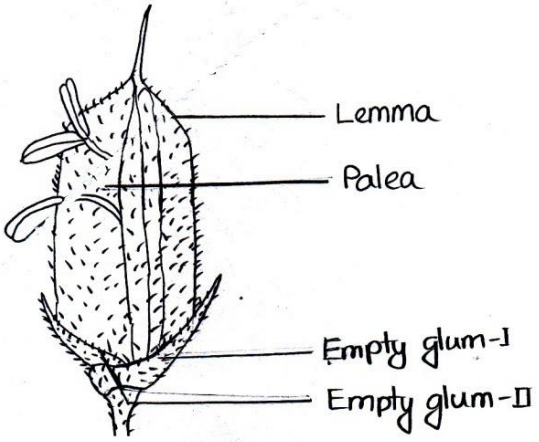

Fig: A spikelet of rice

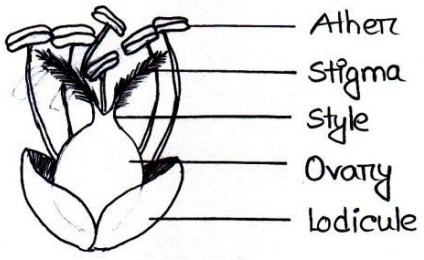

Fig: A flower of rice

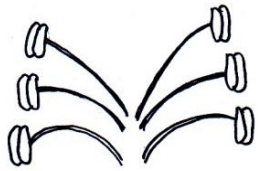

Fig : Androecium

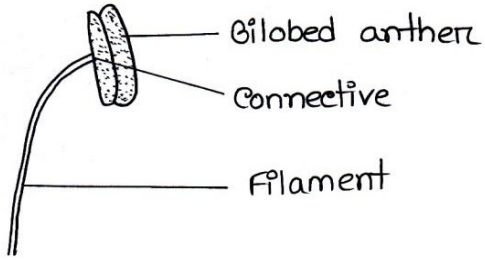

Fig : Stamen

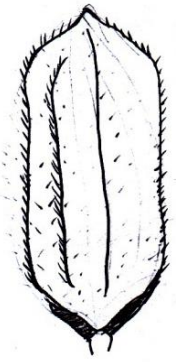

Fig : A grain of rice

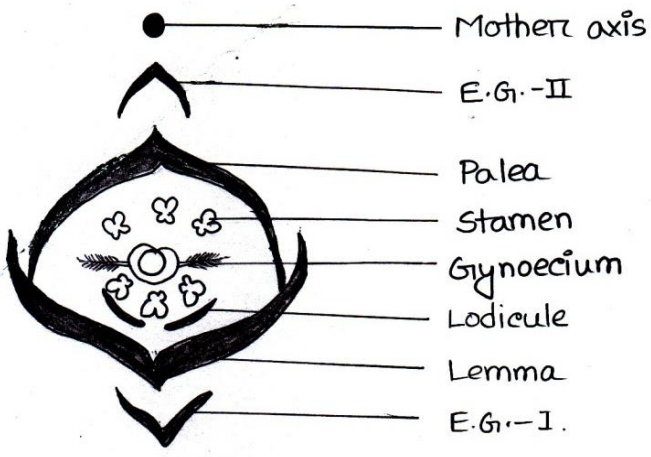

Fig : Floral diagram of a rice spikelet