STUDY NO.: 02

NAME OF THE STUDY: STUDY ON THE EXTERNAL MORPHOLOGY OF GRAMINEAE/POACEAE FAMILY (A WHEAT PLANT)

Bengali name: Gom
English name: Wheat
Scientific name: *Triticum aestivum*
Family: Gramineae (Poaceae)

Habit: An annual, cereal, cultivated herb.

Root: The roots are fibrous and adventitious root also develop from the basal node of the stem.

Stem: Stem erect, usually glabrous, culm (jointed stem) cylindrical with solid nodes & hollow internodes, internodes are covered by the leaf-sheaths, branching by tillering. (The top most internode bears inflorescence.)

Leaf: Simple, sessile, alternate, distichous. Leaf is divided into two parts:

i) leaf blade- long, narrow, lanceolate, acuminate with parallel venation.

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: Spike of spikelets.

Spikelet: Sessile and arranged alternately, variable number of florets and boat shaped two empty glumes.

Floret: Lower florets fertile and terminal floret rudimentary or absent. Fertile floret consists of a lemma, a palea and a flower. Lemma is large boat shaped with awned apex. Palea is small, thin and membranous.

Flower: Sessile, incomplete, bracteate, two bracts – a lemma (inferior palea) and a palea (superior palea), opposite to each other, zygomorphic, bisexual, hypogynous and irregular. It includes perianth, androecium and gynoecium.

Perianth: The perianth is represented by two narrow, thin and transparent lodicules, lies beneath the ovary.

Androecium: Stamens-3, filament long, slender, free, anther bi-lobed and versatile.

Gynoecium: Monocarpellary, ovary obovate, hairy, superior, style reduced or short, stigma bifurcated and feathery, placentation basal.

Fruits: Caryopsis, seed coat firmly united to the ovary wall.

Seed: Albuminous.

Floral formula: Br. % ♀ $P_{2(lodicules)}$ A_3 $\underline{G}_1$

Family identifying characters:

→ Stem culm
→ Inflorescence spikelet
→ Anthers versatile
→ Basal placentation
→ Fruit caryopsis
→ Stigma feathery

Other species:

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

Book references:

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

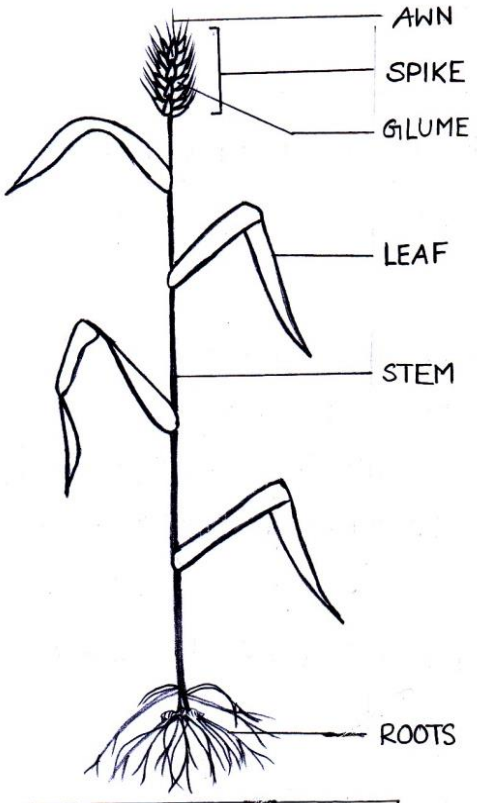

Fig: A WHEAT PLANT

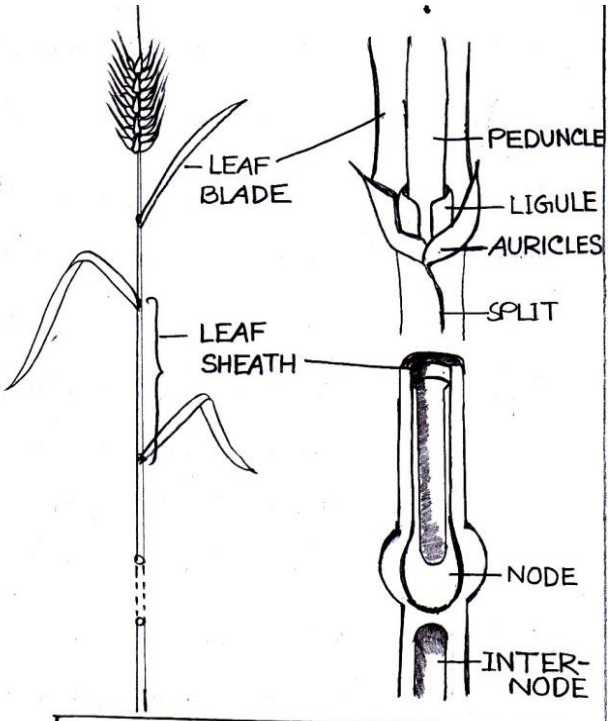

Fig: PARTS OF LEAF AND STEM OF A WHEAT PLANT.

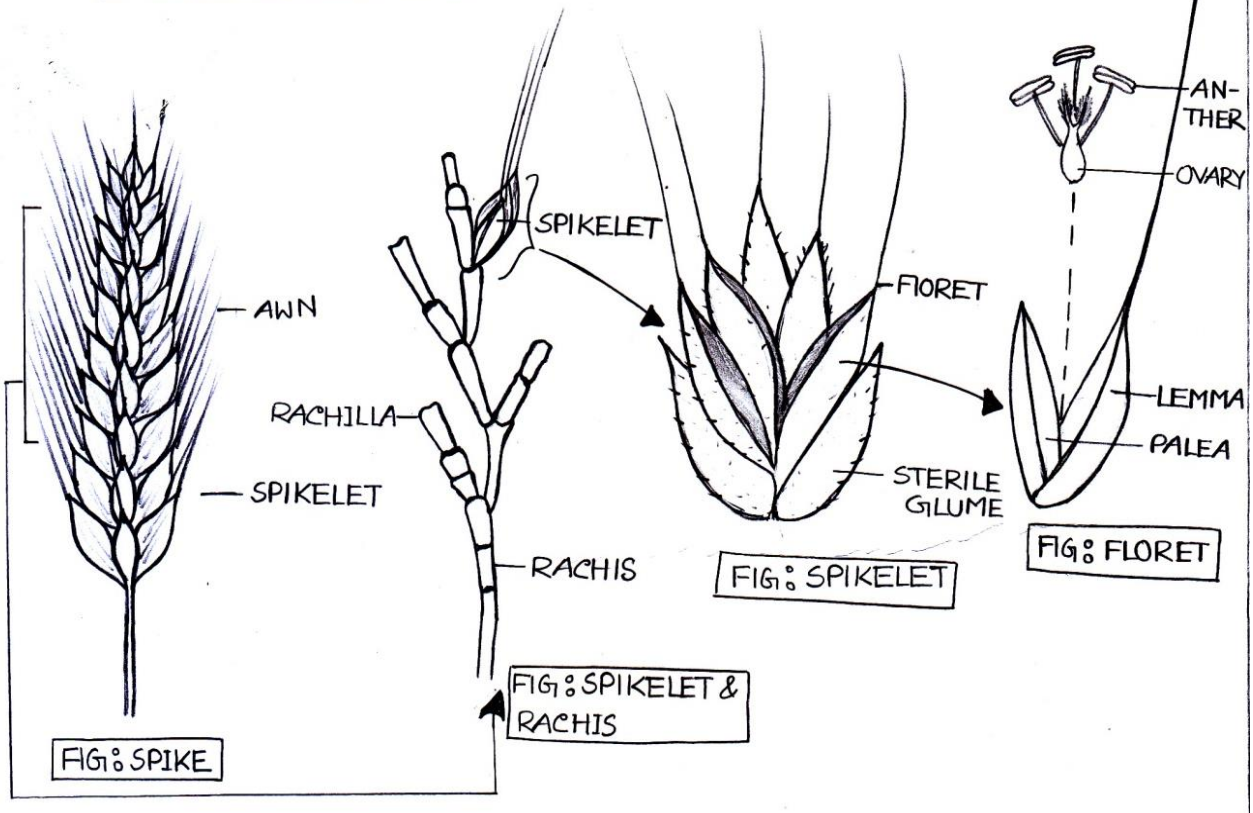

FIG: SPIKE

FIG: SPIKELET & RACHIS

FIG: SPIKELET

FIG: FLORET

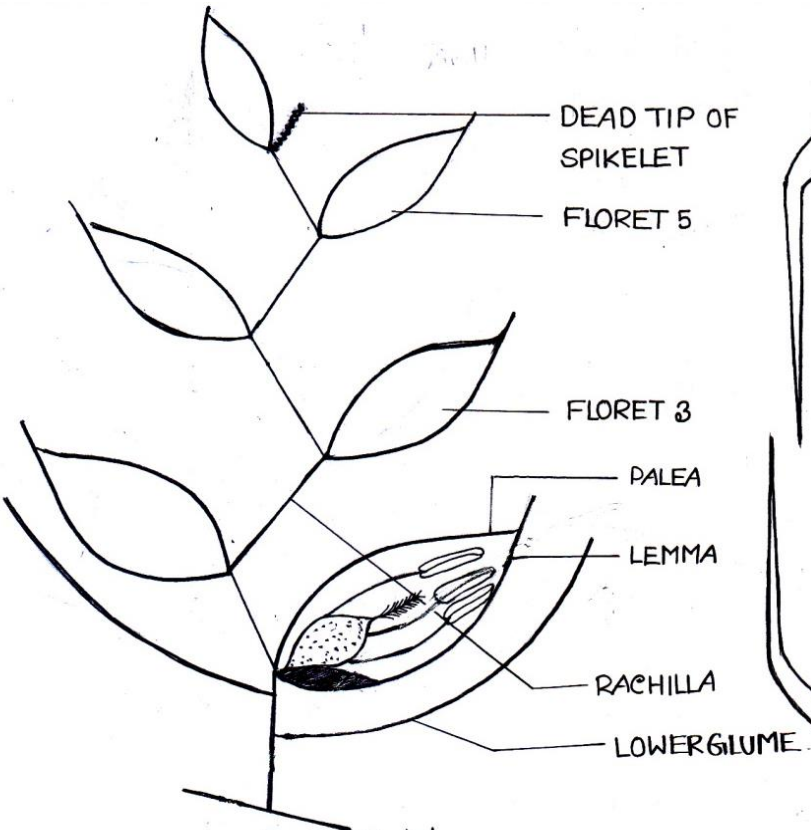

Fig : Diagram of a spikelet

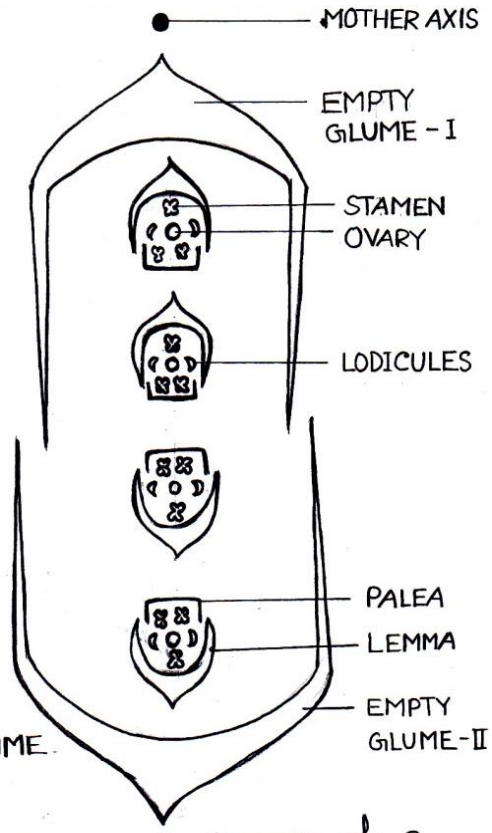

Fig : Floret diagram of a spikelet

♀
STIGMA
STYLE
OVARY
} PISTAL

♂
ANTHER (3)
FILAMENTS

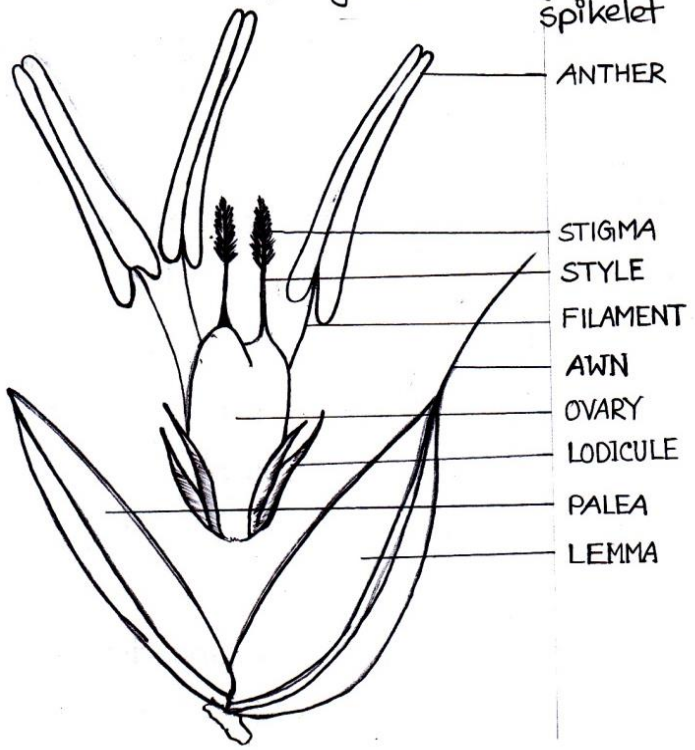

Fig : A wheat floret with it's flower parts.