FOSSIL TYPES

The word 'fossil' is derived from the Latin word **"fossilis"** which means **"to dig up"**. **Fossil** is the remnant, impression, or trace of an animal or plant of a past geologic age that has been preserved in Earth's crust.

Types of fossils: Fossils are of following types-

1. Petrified Fossils:

The word petrifaction means turning into stones. The fossils form when minerals replace all or the parts of the organisms. Water is full of dissolved minerals. It seeps through the layer of sediments to reach the dead organism. When water evaporates only the hardened, materials are left behind. There is molecule by molecule replacement of plant parts by minerals such as iron, pyrites, silicates, carbonates, sulphates etc. These minerals get deposited and impregnated inside the cells and the tissues of the plant. This type of fossil can be studied by preparing the sections and are most suitable for the study of structural details (Fig. 1D). Petrified plant organs roughly spherical in shape are known as coal balls.

2. Molds and Casts:

A mold forms when hard parts of an organism are buried in the sediment such as sand, silt or clay. The hard part completely dissolves overtime, leaving behind a hollow area of organism shape. A cast forms as a result of the mold. Water with dissolved minerals and sediments fills the mold's empty space or cavity. The cavity is known as incrustation and the mineral sediments that are left in the mold make a cast (Fig. 1C). A cast is opposite to its mold. These fossils are suitable for the study of the morphology of fossil plants.

3. Carbon Films:

All living things contain an element carbon. When an organism dies and is buried in sediment, the materials that make the organism break down and eventually only the carbon remains. The thin layer of carbon left behind can show an organism's delicate parts like leaves or plant e.g. fern fossil 300 million years old.

4. Trace Fossils:

Some fossils are completely devoid of plant and animal parts but show evidence of an organism's activities. An animal makes a foot print when it steps in sand. Overtime the foot print is buried in layers of sediment. Then the sediment becomes solid rock. Such traces of organisms, which are appropriately known as "trace fossils," These include **tracks or trails**, preserved waste products, and borings.

5. Preserved Remains:

Some organisms are preserved in or close to their original states. These fossils are called preserved remains e.g., an organism such as an insect is trapped in a tree's sticky resin and dies. More resin covers it sealing the insect inside. It hardens into amber. Some organisms such as a wooly mammoth dies in a very cold region. Its body is frozen in ice which preserves organism even its hair.

6. Compression:

This type of fossil is common in the sedimentary deposits of rocks. It is a sort of impression where most of the organic remains of the plant remain in the fossil state. The plant or plant part gets buried and the sediments go on accumulating over the plant. The growing pressure of the sedimentary rocks removes the air and the watery contents of the fragment out and causes the plant tissue to compress. The compression shows the original outline of the plant or plant parts but the original thickness of the plant material cannot be determined. The buried part becomes flat due to compression or overlying pressure of the sediments (Fig. 1 A).

7. Impression:

These fossils are just impression of plants or plant parts on sediments. These fossils are useful in studying the external features of various plant parts and venation pattern of leaves (Fig. 1B).

8. Pseudofossils:

Sometimes watery solutions of various minerals speed through the sediments and it takes the shape of some plant part or animal. Their study shows that they are neither plants nor animals. Such fossils are called pseudofossils (Fig. 1E).



Fig. 1 (A – E) various types of fossils (A) Compression; (B) Impression; (c) Cast; (D) Petrification (E) Pseudofossil.

