

Write notes on the conditions and process of fossilization.

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Fossil are the remains or impression of prehistoric organism preserved in petrified forms, molds or cast in rocks. The term fossil is used for any trace of past life such as bone of any prehistoric organism, stem parts of leaves and other plant parts, foot prints of any organism and organic compounds produced by biochemical process all of them are categories as a fossil.

The processes of fossilization are complex, and going on in nature even now. Dead plant remains are liable to get disintegrated by microbial action, so that the actual nature of fossilization depends on the environmental condition in which it takes place and the nature of tissue which is going to fossilized. The organism having harder tissue is much likely to fossilized then organism having softer tissue because the softer tissue get disintegrated early. The remains of an organism that survive natural biological and physical process must then quickly buried by sediments. Burial of an organism with rapid influx of sediments is necessary for fossilization because it prevent the dead organisms from disintegration.

After burial any organism gets preserved in the form of fossil by chemical alteration of replacement and compaction. The common fossilization theories are followings --

1. **Replacement theory** – According to replacement theory water dissolves the original plant parts and replaces them with mineral matters, reproducing the microscopic structures of the original organism. The most common replacement minerals are calcite, silica, pyrite and hematite eg; petrified fossil
2. **Per mineralization theory** - It takes place when ground water carries dissolved minerals that infiltrate the microscopic pores and cavities of the tissue of any dead organism and the mineral being deposited producing stony fossil eg; petrified fossil
3. **Carbonization** - It is the process of fossilization by which the more volatile substances of plants or animals decay, leaving behind the carbonic traces of that plants or animals eg; compression and impression fossil

4. **Polymerization** – In this process of fossilization the tree sap get converted to fossil amber. Amber occasionally traps insects or flowers preserving their bodies sealed within the hardened resins, which itself are a plant fossil eg; Amber
5. **Biochemical process of fossilization** – Chemical fossils is organically derived compound formed by death of an organism but there are no traces of actual organism left behind. In this process large organic molecules of dead organisms break down to smaller molecules and survive over long geological time eg; Hydrocarbons such as crude oil and natural gases