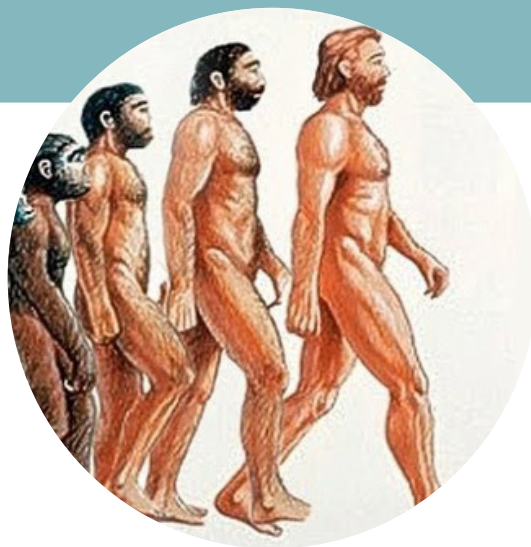


6

CHAPTER

UNIT - II

Evolution



"Each has his own tree of ancestors, but at the top of all sits probably arboreal"

Chapter Outline

- 6.1 Origin of life - Evolution of life forms
- 6.2 Geological time scale
- 6.3 Biological evolution
- 6.4 Evidences for biological evolution
- 6.5 Theories of biological evolution
- 6.6 Mechanism of evolution
- 6.7 Hardy Weinberg principle
- 6.8 Origin and evolution of man
- 6.9 Isolating mechanisms
- 6.10 Speciation
- 6.11 Extinction of animals



Learning Objectives

- Understands the evolution of life on earth.
- Gains knowledge on theories of evolution.
- Interprets evidences (anatomical, embryological and geological) of evolution.
- Learns the principles of biological evolution.
- Understands the importance of gene frequencies in a population.
- Studies the geological time scale.
- Understands the importance of isolating mechanisms in speciation.



The term evolution is used to describe heritable changes in one or more characteristics of a population of species from one generation to the other. The present state of mankind on earth is the outcome of three kinds of evolution - chemical, organic and social or cultural evolution.

Radiometric dating of meteorites yields an estimated age for the solar system and for earth as around 4.5 – 4.6 billion years. The new born earth remained inhospitable for at least few hundred millions years. At first it was too hot. This is because the collisions of the planetesimals that coalesced to form earth released much heat to melt the entire planet. Eventually outer surface of the earth cooled and solidified to form a crust. Water vapour released from the planet's interior cooled and condensed to form oceans. Hence origin of life can be reconstructed using indirect evidences. Consequently, biologists have turned to gather disparate bits of information and filling them together like pieces of jig saw puzzle. Many theories have been proposed to explain the origin of life. Few have been discussed in this chapter.