

# The Living Fossil (Horseshoe crab)

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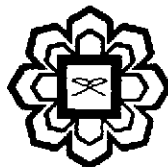
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## CHAPTER – 22

### **Emerging interest on DNA barcoding technology and its application for high-tech biodiversity studies using COI gene as a reference sequence**

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#### **Abstract**

Our planet earth is enriched with innumerable array of species interacting in well defined order in their own niches that eventually helping in the maintaining the ecological structure of any community. Species level identification of this bewildering array of animal taxa using conventional taxonomic approaches need expert taxonomists verifications. If a specimen is damaged or fragmented, at an immature stage of development, or part of an undiscovered cryptic species, even specialists may be unable to make precise identification. DNA barcoding technology solves these problems because non-specialists can obtain barcodes from tiny amounts of tissue, in many cases even when it has been cooked and prepared, or even digested. In this review paper we discussed (i) the emerging importance and applications of DNA barcoding technology using mitochondrial DNA sequences as a reference target, (ii) Development of handheld DNA sequencing technology that can be applied in the field for biodiversity inventories and (iii) the limitations of DNA barcoding technologies and (iv) providing insight into the diversity of life.

**Key words:** DNA barcoding, mtDNA, COI gene, Molecular taxonomy, Species identification, Biodiversity analysis

#### **Introduction**

A biodiversity crisis has emerged in the last decades and we are confronted with the highest extinction rates since the formation of human society (Pimm *et al.* 1995). Mitigation measures