Cytogenetic studies on five Red Sea reef fish species *Larabicus quadrilineatus, Hemigymnus melapterus, Thalassoma rueppellii, Thalassoma lunare and Gomphosus caeruleus* of the family Labridae (Perciformes) were carried out; all samples were collected from Hurghada, on the Egyptian Red Sea coast. All the specimens showed a diploid chromosome number of 2n=48, they were also identical in the karyotype (all acrocentric), and in the Fundamental number FN=48. The RAPD-PCR analysis were carried out by using eight primers OPA12, 5’-TCGGCGATAG-3’, OPA14,5’-TCTGTGCTGG-3’, OPA15, 5’-TTCCGAACCC-3’, OPA17,5’-GACCGCTTGT – 3’, OPA18 5’-AGGTGACCGT-3’, OPA19 5’-CAAACGTCCG-3’, OPA20,5’-GTTGCAGATCC-3’ and OPO11,5’-GACAGGAGGT- 3’.

The results were extremely useful to improve the importance of using RAPD-PCR in genetic analysis among the species which are identical in chromosome number and karyotype.