Abstract

This study was performed in order to investigation of Indian oil sardine (*S.longiceps*) population and introduces the molecular markers for four species of sardines Entitled: *S.longiceps, S.albella, S.sindensis* and *S.gibbosa* by molecular genetic.

Sampling was performed from 2 major areas of sardins fishing area in Jask area for *S.longiceps* and also for the other sps. (*S.albella, S.sindensis and S.gibbosa*).

by the way we accumulated the samples of *S.sindensis sp.* from the other part of Persian Gulf shores like Bandar-e lengeh, Qeshm Island, Bandar-e Gorzeh and Bandar-e Kangan in Bushehr Province, because this sp. Was the dominant sp. In Persian Gulf and we didn't find any other *sps.* For sampling in that season.50 samples of each sp. were achieved from each area for this study.

Total DNA were extracted using phenol-chloroform and Amonum acetate methods from the dorsal fin tissue.

PCR was performed using tow specific primers from cytochrom oxidase b Gene that sequenced from mtDNA Gene of *S. madresensis sp.*

We could achieve PCR products from second primer entitled J1 (Reverce.) & J2 (Forward.) for 3 sp. (*S.albella, S.longiceps, S.sindensis*).

Reasonable results achieved 1190bp for *S. albella*, 945bp for *S.longiceps* and 725bp for *S.sindensis* (in all of the cathing area for *S.sindensis*) respectively.

In this stage the molecular weight and the situation of the bands for each species on the polyacrylamid gel (PAGE) were different distinctly. These indices were introduced as the molecular markers for three sp. of *sardinella sps.* In Persian Gulf and Oman Sea.

In order to investigation of *S. longiceps* population, the PCR product of samples belong to that sp. were digested by restriction endonuclease enzymes such as MspI MvaI, PstI, BglII, HinfI, Mbo, DdeI, HaeIII, followed by polyacrilamid gel electrophoresis (PAGE), Observed by silver nitrate staining method. The bands of DNA were the same for each enzyme in all samples of two investigated areas and the results indicated that there was no polymorphism between samples. These result may suggested that may be the nucleotide diversity on investigated gene (cytochrom oxidase b) is low or cytochrome oxidase b gene in *S.longicepsis* is a conserved gene and its better that the other part of mtDNA gene (cytochrom oxidase I or D-loop) would be investigate. On the other hand the areas for sampling aren't so far from each other because we couldn't find any other samples from the other part of Persian Gulf.

The last note is that may be the number of restriction endonuclease enzymes in this study aren't enough or suitable for the study of genetic variation in the samples are belong to a single genetic population and was no possible for isolation of different genetic populations in this specie.

However in this study, the cytochrome oxidase b gene is a suitable mtDNA gene using to introduce the moleculare marker for the investigated species of *Clupeidae* family in Persian Gulf and Oman Sea.

Key words: mtDNA –PCR –RFLP – Cytochrom Oxidase b– Clupeidae family – *S. longiceps* Indian oil sardine –*S.albella* –*S.sindensis* –genetic variation – Persian Gulf