

**TITLE** : Genetics Marker for genetic relationship and identification of freshwater pufferfish in Northeast of Thailand

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### ABSTRACT

Cytogenetics of five fish species in the family Tetraodontidae of Thailand was studied. These include *Tetraodon cochinchinensis*, *T. suvattii*, *T. palembangensis*, *T. fluviatilis* and *Dichotomyctere nigroviridis*. Chromosome was prepared from kidney tissues followed by conventional staining and NOR banding techniques. The results showed that the diploid chromosome numbers were 40, 40, 36, 40 and 42, respectively and the fundamental numbers (NF) or chromosome arm were 74, 78, 72, 76 and 80 for male and female, respectively. Sex chromosomes could not be identified. The marker chromosome is NOR-bearing chromosomes which found one chromosome pair in all puffers. NOR locations were on region adjacent to the centromere of short chromosome in *T. cochinchinensis*, *T. suvattii*, *T. palembangensis* and *T. fluviatilis*, respectively while these were on region adjacent to the telomere of short arm chromosome in *D. nigroviridis*. The karyotypic formula composed of metacentrics-submetacentrics-acrocentrics and telocentrics as follow: 12-10-12-6, 16-22-0-2, 20-16-0-0, 16-12-8-4 and 18-8-12-4, respectively.

The study of genetic diversity of three puffer fish populations using RAPD-PCR analysis, RAPDs generated by 3 primers produced 27 distinguishable and reproducible DNA bands. The average size of the amplified DNA fragments ranged

from 100 to 2,000 bp. An UPGMA (unweighted pair groups with arithmetic means) dendrogram clearly showed that three populations could be divided into three groups; *T.cochinchinensis*, *T.suvattii* and *T. palembangensis*. The genetics relationship shown that *T.cochinchinensis* and *T.suvattii* are more genetically close than *T. palembangensis* and DNA fingerprints can be used to separate the population of fish from two habitat of water clearly.