CONCLUSIONS
Conclusions

The following inferences can be made on the basis of analysing data on genetic markers selected during the present investigations to investigate the substructure of *C. batrachus* population inhabiting the western belt of Uttar Pradesh.

1) The repertoire of soluble muscle proteins consists of at least two groups or categories of proteins which are the most likely candidates as genetic markers: category-1 (heat unstable proteins) and category-2 (heat stable proteins).

2) The band composition of category-1 markers could plausibly be explained by a hypothesis that they are dimorphic proteins under control of two codominant alleles encoding subunits (*a* and *b*). One of the two alleles encodes normal subunits *a* while the other one subunit *a'*. Polypeptides *a* and *a'* have the identical electrophoretic mobility. The electrophoretic mobility of *b* encoded by the other codominant allele has a different (slower) electrophoretic mobility.

3) The relative intensities of the bands are explained on the basis of two postulates: 1) the differences in the thickness of homodimers (*bb*) and isodimers (*a'a'*) or heterodimers (*ab*) and isoheterodimer (*a'b*) and, 2) the dosage differences of alleles.

4) Category-2 (heat stable proteins) appear to be monomers, in particular those identified as parvalbumin isoforms (PAs).
5) Excepting category-2 markers where silver staining is essential at suboptimal loadings, routine CBB staining is satisfactorily reveals the observed polymorphism.

6) Six variants (polymorphs) exist in multiple hemoglobins (Hbs) varying from 2-5 tetramers in different combinations. A compatible multiplicity is also the characteristic of Hbs of this species, since as many as four polypeptides participate in constituting one or the other tetrameric electromorph (band) of a particular polymorph (Vhb).

7) Eye lens nuclei crystallins which are monomeric proteins also show a group consistency according to which six variants were sorted out of SDS-PAGE patterns. These variants show a lesser number of bands in SDS-PAGE whereas a considerably higher number of bands resolve by IEF, indicating that several of the crystallins have the same molecular weight when electrophorressed as SDS complexes. According to IEF patterns, crystallin phenotypes of eye lens nuclei have mostly $\beta$ and $\gamma$ crystallins.

8) By using the above protein markers, the population of *C. batrachus* appears to be of heterogeneous distribution along the western belt of Uttar Pradesh. $\chi^2$ homogeneity test applied on protein bands of each of the three main protein systems supports the genetic nature of the bands identified as markers since a significant homogeneity exists within the identified polymorphs.