INTERNATIONAL CODE OF ZOOLOGICAL NOMENCLATURE(ICZN) OPERATIVE PRINCIPLES AND IMPORTANT RULES. ZOOLOGICAL NOMENCLATURE AND SCIENTIFIC NAME OF VARIOUS TEXA (PART I)

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Nomenclature means allocation of name to the taxa. The term 'nomenclature' comes from the Latin words 'nomen' (=name) and 'calore' (=to call), which literally means "to call by name". Through nomenclature, labels are provided for taxa at all levels to facilitate communication among biologists. The scientific names of taxa at all levels in which they are placed form a system of communication, a language; these names must fulfill the same basic requirements as any other language. So, to have an International scientific language "International Code of Zoological Nomenclature" was framed.

International Code of Zoological Nomenclature:

The set of rules, system and recommendations for zoological nomenclature authorized by the "International Congress of Zoology" is called "International Code for Zoological Nomenclature" (ICZN). This code consists of three main parts – The Code Proper, Appendices, and Glossary. The Code Proper includes "Preamble" followed by 90 consecutively numbered "Articles" grouped in 18 chapters. Each article is composed of one or more mandatory provisions, which are sometime accompanied by "Recommendations". There are three appendices, the first two have the status of recommendations and third is the constitution of the Commission. The terms used in the text are clearly defined in the "Glossary",

Origin (History) of the Code:

Linnaeus was the first to mention a sets of rules of nomenclature in his book "Critica Botanica" (1737) and "Philosophica Botanica" (1751). During 19th century more and more new and lcal sets of rules originated in different countries. So, to have an International Code, Professor Blancherd prepared a sets of rules, which were presented at the 1st "International Congress of Zoology" held in 1889 in Paris, but accepted only in the 2nd "International Congress of Zoology", Moscow, 1892. Later after a revision a final draft was prepared and circulated to the "International Commission of Zoological Nomenclature", on 11th Jan/1961. It was approved by the Commission and formally accepted as the "International Code of Zoological Nomenclature" adopted by the "XV International Congress of Zoology", London, 1958 and published by "International Trust for Zoological Nomenclature", London 1961.

The objective of the Code was highlighted in the first edition of the International Code of Zoological Nomenclature, 1961. There are three basic objective of the Code –

1. Uniqueness: Every scientific name has to be unique because it is the key to its entire literature relating to this species or higher taxon.

2. Universality: The communication regarding scientific name. would be very difficult if we had only vernacular names in different languages; specialists would have to learn the name of taxa in innumerable languages in order to communicate with each other. To avoid this, zoologists have adopted by International agreement to use single language and a single set of names for each animals and its taxonomic groups. So, scientific names for taxa are universally accepted.

3. Stability: If scientific names are frequently changes than the communication would be hampered. So, ICZN emphasized to retain the stability of scientific name by creating "Law of Priority".

Preamble:

The objects of the Code are to promote stability and universality in the scientific names of animals and to ensure that the name of each taxon is unique and distinct. All its provisions and recommendations are subservient to those ends and none restricts the freedom of taxonomic thought or actions.

Priority of publication is a basic principle of zoological nomenclature; however, under conditions prescribed in the Code its application may be modified to conserve a long-accepted name in its accustomed meaning. When stability of nomenclature is threatened in an individual case, the strict application of the Code may under specified conditions be suspended by the International Commission on Zoological Nomenclature.

The International Commission on Zoological Nomenclature is the author of the Code.

Chapters of the ICZN:

The "Preamble" is followed by 18 chapters which includes 90 consecutively numbered "Articles".

Chapter 1: Zoological nomenclature (Article 1 to 3)

Chapter 2: The number of words in the scientific names of animals (Article 4 to 6)

Chapter 3: Criteria of publication (Article 7 to 9)

Chapter 4: Criteria of availability (Article 10 to 20)

Chapter 5: Date of publication (Article 21 to 22)

Chapter 6: Validity of names and nomenclatural acts (Article 23 to 24)

Chapter 7: Formation and treatment of names (Article 25 to 34)

Chapter 8: Family-group nominal taxa and their names (Article 35 to 41)

Chapter 9: Genus-group nominal taxa and their names (Article 42 to 44)

Chapter 10: Species-group nominal taxa and their names (Article 45 to 49)

Chapter 11: Authorship (Article 50 to 51)

Chapter 12: Homonymy (Article 52 to 60)

Chapter 13: The type concept in nomenclature (Article 61)

Chapter 14: Types in the family group (Article 62 to 65)

Chapter 15: Types in the genus group (Article 66 to 70)

Chapter 16: Types in the species group (Article 71 to 76)

Chapter 17: The International Commission on Zoological Nomenclature (Article 77 to 84)

Chapter 18: Regulations governing this code (Article 85 to 90)

Some Important Rules of Zoological Nomenclature:

Zoological nomenclature is the system of scientific names applied to taxonomic units (taxa; singular: taxon) of extant or extinct animals (Article 1.1). Zoological nomenclature is independent of other systems of nomenclature in that the name of an animal taxon is not to be rejected merely because it is identical with the name of a taxon that is not animal (Article 1.1.1).

Some of the important rules of Zoological Nomenclature are as follows –

1. Uni -, Bi -, Tri -, nomenalism:

The scientific name above the sub-genera is uninominal (Art. 28). The Code stipulates standerised endings for the name of super family (-oidea), family (-idea), sub family (-inae), tribe (-ini) and rarely sub tribe (-ina). The names of species are binominal and those of sub species are trinomnal. For example,

Genus	Sub genus	Species	Sub species	Author
Dacus	(Afrodacus)	*aberrans*	*Nigritus*	Hardy,1955

The scientific name above the sub genus is started with capital letter and the species and sub species names are started with small letter. The first (Genus) and the third name (species) formed the binominal and the first, third and fourth (Sub species) formed the trinominal nomenclature. The presence of sub genus does not affect the status of nomenclature. The name of the genus, species and sub species are preferably italicized or underlined.

2. Name change and instability of Nomenclature:

The species are frequently are shifted from one genus to the other. Zoological Code has got provisions to govern such changes. Specific name can not be changed if it is valid, but the generic name can be changed. For example, Rohu fish was first discovered by Hamilton in the river Ganges.

Cyprinus rohita Hamilton,1982

Later on the genus name has been changed and the original author's name is written in the parenthesis.

Labeo rohita (Hamilton), 1822

3. Use of punctuation marks:

Comma is always used in between the author name and the year.

4. Law of Priority:

The name of a taxon is valid if the oldest name of a taxon is 'valid' if it is the oldest available name applied to it (Article 23). The date of publication of a name thus is of crucial importance. In zoologucal nomenclature the priciple of priority applies only to the categorial levels of species (and sub species), genus, and family. It

does not apply to the higher categories. The 'Law of Priority' is thus promot stability to the scientific name. It is restricted to the species (and sub species), genus and family.

5. Starting point date: (Article 3)

The starting point date for zoological nomenclature is 1st January, 1758, and the 10th edition of Linnaeus, "Systemma naturae" has been regarded to have been publishedon that date. Any work before 1758 is treated to have been published after that date, except spider nomenclature is considered to have started in 1757 (Clerk, C. 1757, Aranei svecici, Bul, Zoo. Nomenclature 4:319).

6. Formation of name:

Zoological names are written either in Latin or Latinized form, so it is important for the Zoologist to be familiar with the rules that govern the correct transliteration and Latinization of words. The appendices (B,C,D) to the Code are specially devoted to these matters.

7. Use of suffixes '*i*', '*orum*', '*ae*' and '*arum*' (Article 31.1.2):

These suffixes are used for species group names from modern personal names.

smithi from Smith (Personal name of a man)

smithorum from Smith (if name of men, or man and woman together)

guptae from Gupta (Name of a woman)

smitharum from Smith (Name of women)

8. Use of Suffix '*ensis*' or '*iensis*' in taxonomic works:

These are important suffixes used for species group names based on a geographical name, e.g., *ludhianensis* from Ludhiana, *siciliensis* from Sicily.

9. Kinds of name (Article 8 to 12):

The zoological name which satisfies the Code is called "available name" or 'valid" name and which does not satisfy the Code is called "nomen nudum". A name which replaces the earlier name is called "nomen novum". Some other important kinds of names are –

Nomen hybridum: - Hybrids are individuals. So, the names of hybrids have no status in nomenclature.

Vernacular name: The name of ataxon in any language other than the language of zoological nomenclature is called vernacular name.

Species inquirenda: A doubtfully identified species needing further investigation is called species inquirenda.

10. Tautonyms (Article 18):

The tautonym is a name of species or sub species in which the second or even the third components of the name repeats the generic name, e. g., *Apus apus apus.*

11. Synonymy (Article 10 – 11):

Two or more names belonging to the same taxon is called synonyms. Senior synonym got validity according to the "**Law of Priority**"

12. Homonymy (Article 52 – 60):

Same name to the taxa is called homonymy. Here also senior homonym got validity according to the "Law of Priority".

13. Typifications (Zoological Type):

The designation of a nomenclatural type is called typification. The Zoological Code recognizes only a few terms like –

Type specimen – the specimen which was selected by the observer.

Holotype – single specimen selected from the collection of observer.

Paratype – other specimen of the observer excluding holotype.

Syntype – more than one specimen selected by the observer.

Lectotype – the single specimen selected by the revisor from the syntype is called lectotype.

Neotype – If the type specimen is lost under certain condition than the revisor can select another specimen and it is called neotype.

14. Power of the Commission:

Article 77 to 84 is devoted to the Power of the Commission. The "International Commission on Zoological Nomenclature" which derives all its power from the "International Congress of Zoology". The opinions of the Commission are published in the "Bulletin of the Zoological Nomenclature". The Commission consists of a President, Vice President, Secretary, Assistant Secretary and 25 members from 19 countries. The Commission meets triennially with General Assemblies of "International Union of Biological Science".

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