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TERMS-EPONYMS AS A PART OF BIOTECHNOLOGICAL TERMINOLOGY

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Abstract

The terminology of biotechnology is a dynamic and ever-evolving domain, teeming with specialized terms and unique nomenclature. Among these, eponyms – terms derived from the names of people – occupy a fascinating niche. This article delves into the functioning of eponyms within this specialized language, exploring their roles, advantages, and potential drawbacks, morphological features, sources of origin, as well as their structural and semantic organization.

Keywords: *term, eponym, terminology, biotechnology, origin, structural and semantic organization*

Introduction

The intensive development of biotechnology – the science of methods and technologies for the production of various substances and products based on the use of natural biological objects and processes – became possible only thanks to the long-term work of representatives of various branches of science – biologists, biochemists, geneticists, immunologists, microbiologists, pharmacologists and other specialists. The heterogeneity of the composition and content of the subject area of biotechnology, its complexity, depth and multidimensionality have a huge impact on the ramifications of biotechnology terminology, which is characterized by the presence of such complex features as: systematicity, integrity, stability, structural complexity (quantitative superiority multicomponent terms over single-word terms), the presence of borrowings, synonyms, homonyms, antonyms, as well as eponyms (Izvolskaya, 2004).

Depending on the nature of the nomination, names of objects are divided into two types: common nouns and proper ones.

Proper names are words or phrases that name a specific, well-defined object or phe-

nomenon. The study of proper names is carried out by onomastics (from the Greek onomastikos) – "a section of lexicology devoted to the study of proper names" (Izvolskaya, 2004), the history of their origin and transformation as a result of prolonged use in the language or in connection with borrowing from other languages. In a narrower sense, onomastics deals with the study of proper names (anthroponyms). Proper nouns are classified into several groups such as, toponyms, anthroponyms, mythonyms, zoonyms, chrematonyms, eponyms, chrononyms.

In the language there is a constant exchange, interaction between common nouns and proper nouns, which contributes to the enrichment of the vocabulary of the language. One of the results of this interaction is the emergence of a special layer of vocabulary – eponymous units (from the Greek eponymos from epi from onyma – name) – proper names, which have become common nouns.

When proper names transform into common nouns, the word acquires a new meaning, which now correlates with the typical activities of the named person, with typical products manufactured by a given person or in a given area, with some characteristic conditions of the area, that is, there is an expansion of the scope of the meaning of the word (Seredin, & Belkova, 2022).

Thus, eponymous units are a heterogeneous phenomenon. Description and analysis of eponyms is impossible without a certain classification, which is introduced to more clearly distinguish between phenomena. Due to the wide variety of types of eponymous units, the parameters by which their classification is carried out may also be different.

Our research is focused on the eponymous units of the above-mentioned names, and consists in analyzing their semantic and structural properties.

Literature Review

In World Linguistics scholars like R.C.S. Trehair, E. M. Kakzanova, J. Gittinger, R. P. Ferguson, Z. Taubaev, D. Benner have studied eponymous units only in specific fields. In particular, E. M. Kakzanova, medical and mathematical fields of eponymous units, Z. Taubaev carried out research on social and political topics, using the example of the comparison of the Kazakh and English languages. The works of A. V. Superanskaya, E. M. Kakzanova, V. V. Vakhrameeva, V. M. Leichik, S. D. Shelov and others are devoted to the study of eponym terms. The most studied subclass of eponyms in terms of semantics turned out to be eponymous terms of medicine and anatomy (Leichik, 2020).

The question of eponyms, denoting the names of "objects, phenomena or processes formed from the names of proper deities, mythical creatures, legendary heroes or real-life people" (Leichik, 2020), is one of the controversial aspects of modern terminology.

It should be noted that the word eponym can be the name of a real or mythical person or hero, the name of any geographical object (city, river, mountain, lunar crater, etc.), people, tribe or time period named after him.

In science, an eponym is the name of a phenomenon, the name of the person who first discovered or described a concept, structure, or method, or any names that become common nouns (Ziyodullayev, 2022).

Eponym began to appear as a linguistic term in various languages from the 80s of the XX century. Eponymous terms appear in the language when it is necessary to describe new, not yet studied scientific facts, and most often, the names of scientists who made a particular scientific discovery are used. Thus, these terminological units contain important historical and cultural information, reflecting various stages of scientific and technological progress, and therefore play an important role in the scientific knowledge of the world (Belopolsky, 2022).

In biotechnological terminology, terms containing proper nouns are common. In linguistics, such terms are simply called "eponyms", "eponymous terms" and constitute an important part of terminology.

Research methods and materials

The purpose of the research is to study common biotechnological eponyms in the English languages, to analyze the corresponding names formed with their participation, to analyze the lexical-semantic and word formation of modern biotechnological terminology, to identify the quantitative and qualitative char-

acteristics, disadvantages, advantages and possibilities of eponymous terms.

For research paper, the following methods, such as, data collection, diachronic method and definitional analysis method were used.

Terminological dictionaries, scientific publications and literature served as the material of the research.

A study of the English sublanguage of biotechnology showed that eponymous terms are also a distinctive feature of the term system being studied. Based on a continuous review of dictionaries, books and scientific articles on biotechnology a sample of eponym terms with a total volume of 107 units was obtained. The small number of eponymous terms presented in the language is fully explained by the fact that the terminology system of the biotechnology sublanguage is still in the process of its formation.

Results analysis

Scientists involved in the study of eponymous terms highlight the positive and negative aspects of these terminological units. Thus, their positive qualities should be considered the ease of the nominative process, brevity, high-frequency uniformity of structure (Garanin, 2019). For example, replacing the eponymous term Barr body with the description "a condensed mass of chromatin found in the nuclei of female mammals" will significantly complicate and slow down the work of specialists. Among the negative qualities, scientists highlight the difficulty of adequate reading and writing, lack of sufficient scientific accuracy, provision of inaccurate information about the discoverer of a particular phenomenon, homonymy of eponymous terms (Vakhrameeva, 2003).

Having analyzed the selected material, it was decided to divide eponyms into groups according to characteristics and sources of their origin. Having done this work, we identified the following groups:

1. Eponyms formed from anthroponyms, i.e. from proper names that identify a person, such as first name, last name, nickname, etc.: Biuret reaction, Bence Jones protein, Bohr effect, Chargaff's rule, Donnan effect, Kreb's cycle.

2. Eponyms formed from toponyms, i.e. from proper names denoting the names of geographical objects: Edinburgh 76 virus, Landry-Guillain-Barré syndrome.

3. Eponyms formed from brand names, i.e. from proper names that were names of brands or companies: Gibco cells, Xerox copy, Jiffy potTM.

4. Eponyms taken mythological names: kappa chain, Sphinxtin, Hydra Cells, Chimera, Charon.

In order to study the peculiarities of the functioning of eponym terms in the English biotechnological terminology, an attempt was made to consider the structural and semantic organization of eponyms.

In the morphological analysis of the terminology under the study the following word formation processes were identified: conversion, suffixation and blending.

1. Conversion: proper nouns become common nouns: Dalton-dalton, Jouel-joule, Roentgen-roentgen.

2. Suffixation: Some of the other productive suffixes:

– ize/-ise: [v] to subject to a process denoted by its originator: pausterize, galvanize, mesmerize.

– ism: [n] principles, doctrines or practices: Mendelism, Darwinism.

– ian: [adj] belonging to, related to: Darwinian, Mendelian.

3. Blending: Bacitracin – "Baci": This derives from "Bacillus", the genus of bacteria containing the strain producing the antibiotic (specifically, Bacillus licheniformis); "tra": This comes from Margaret Tracy's name, acknowledging her crucial role in the discovery, "-cin": This is a common suffix used in antibiotic names, signifying their chemical nature.

Structural analysis of eponym terms of the terminology under study allowed us to identify the following structural types:

1. Simple terms-eponyms, consisting of one word, formed by affixation from an eponym or in a semantic way: centiMorgan (cM), Mendelism, Roentgen, Sphinxtin, Chimera.

2. Multicomponent (composite) eponyms are formed by combining several components (single-word or analytical lexemes), one of which is the eponym term (Kudinova, 2006).

Analysis of the terminological system under study allowed us to identify two-, three-, four- and five-component terms:

2.1. Two-component eponym terms are most widespread in English terminology of biotechnology: Steward bottle, Gram, Michaelis constant, Feulgen's test, Mendel's Laws, Kornberg enzyme, Joel's liquid.

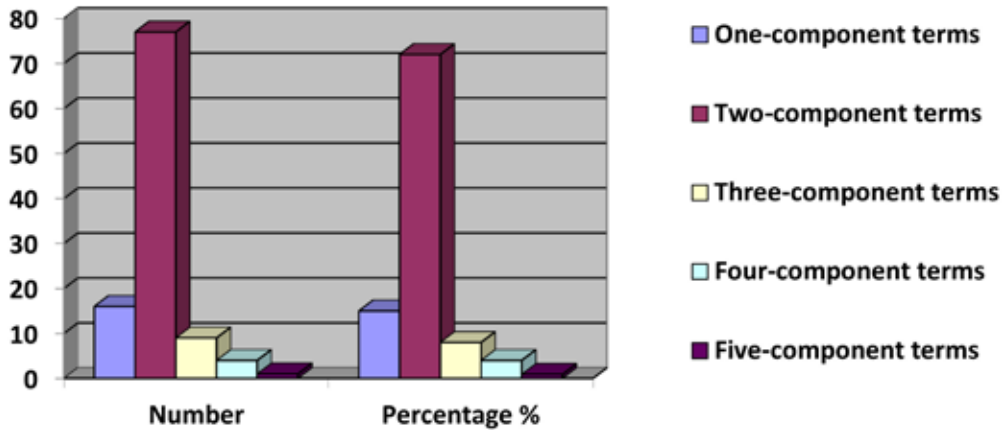
As can be seen from the examples, this structural model consists of a proper noun in the subjective or possessive case and a common noun. It is noteworthy that sometimes an adjective is formed from a proper noun by adding an affix: Darwinian cloning, Mendelian population.

2.2. Three-component eponym terms are also presented in English biotechnological terminology, although not so widely: dendritic Langerhans cells, Southern blot hybridization, Wright's inbreeding coefficient, Hoogsteen base pairing.

2.3. Four-component eponym terms can be represented by the following examples: Duchenne muscular dystrophy gene, Farrant two-stage freezing technique.

2.4. Five-component eponymous terms are demonstrated by a single example: Marek's disease-derived T-lymphoma cell lines, which once again confirms the following pattern: an increase in the number of components in a terminological combination leads to a reduction in their number in a scientific text.

Figure 1. *Structural types of eponyms in English biotechnological terminology*



A type of multi-component eponyms are terms, one of the components of which is a complex eponym term with a hyphenated spelling (Seredin, D. S.& Belkova, E. V., 2022): Gibbs-Donnan effect, Watson-Crick model, Hardy-Weinberg equilibrium, Krebs-Kornberg cycle, Shine-Dalgarno sequence, Henderson- Hasselbalch equation, Bowman-Birk trypsin inhibitor, Griffith-Avery-McLeod-McCarthy experiment. The presence of the names of two scientists in a term indicates either joint study of a problem, or simultaneous work independently of each other.

As can be seen from the examples, the formation of eponymous terms occurs practically according to the same principles as the formation of ordinary terms, and two-component eponym-terms occupy the main part of the eponyms in terminology of biotechnological sphere in the English language.

In terms of semantics T.A Kudinova classifies eponyms into five semantic groups (2006), however, semantic analysis of selected eponym terms allowed us to identify the following seven semantic categories:

1. Structure of DNA, RNA: Klenow fragment, Watson-Crick Model, Shine-Dalgarno sequence, Holley Model, Okazaki fragment.

2. Methods of cell and genetic engineering: Feulgen staining, Southern blotting, Sanger technique, Darwinian cloning, Gram staining, Southern hybridization, Berk-Sharp method, Edman degradation.

3. Basic laws of genetics used in biotechnology: Mendel's Laws, Hardy-Weinberg equilibrium, Mendelian segregation, Mendel's Laws of Inheritance.

4. Laboratory instruments and equipment: Steward bottle, Erlenmeyer flask, Petri dish, Bunsen burner, Pasteur pipette, Kjheldhal Apparatus 800 ml J sil.

5. Moral and ethical aspects of biotechnology: Frankenfood Frankenstein food, genetically modified products (Frankenstein is the hero of the story by M. Shelley, who created a monster from parts of human bodies), The

Belmont Report (written by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research).

6. Units of measurement used in biotechnology: The becquerel (symbol: Bq), centi-Morgan (symbol: cM), dalton (symbol: Da), joule (symbol: J), Roentgen (symbol: R), Angstrom unit (symbol: Å), curie (symbol: Ci).

7. Main concepts used in biotechnology: Bence Jones protein, Heinz body, Kupffer cell, Langerhans cell, Neuberg ester, Schiff base, Barr body, Hydra Cells, Kornberg enzyme.

The considered semantic categories completely coincide with the thematic distribution of the semantic space of the biotechnology terminology.

Conclusion

In general, eponyms serve as the main lexical layer in society, social life, including the scientific field. With the development of society, the thematic manifestations of eponyms also increase. Eponymous units help to gain a deeper understanding of the information in the relevant areas.

By studying eponyms, one is acquainted with the biographies of persons whose names have become eponyms, geographical features of place names such as specific cities, states, objects, structures. The conducted study of the peculiarities of the functioning of eponym terms in the English terminology of biotechnology, which is one of the productive sources of replenishment of the studied terminology, allows us to speak about the observed tendency towards their widespread use in scientific texts. Eponyms greatly contribute to the enrichment of terminology, the correct understanding of texts on biotechnology, and facilitate professional communication.

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