METHODOLOGICAL ASPECTS OF ASTROBIOLOGY AS A MULTIDISCIPLINARY SCIENCE.

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In the literature there are various names of science dealing with the emergence and evolution of life in the Universe - on Earth and beyond, based on a kind of fusion of biology and astronomy. The methodology of science has also a contribution to that consideration due to an attitude a danger of gross oversimplification. So far, there are exobiology, esobiology, cosmobiology, biocosmology, bioastronomy, and astrobiology (table 1), [1]-[2], [7]-[9]. The purpose of my article is to analyze and present relationships of such interchangeably used sciences (notations, also called as 'synonymies'), and characterize them in the context of other natural sciences and space life sciences. Another aims of this paper are: a critique of attempts of terms uniform, and indication the list of auxiliary sciences for astrobiology in formulated system of sciences (classification). Furthermore, astrobiology in UNESCO systems of classifying knowledge is a good example to illustrate problems in relation to misleading assignments of certain scientific disciplines and subdisciplines, [10].

Astrobiology and the synonymous notations or autonomous sciences?. Form the point of view of history of science and philosophy of science methodological status of any science is significant. Linguistics analysis of the different prefixes: astro-, bio-, cosmo- and its different roots (treated also as single sciences), such as –biology, -cosmology, -astronomy are useful to investigate probable approved semantic equivalents. Pointing out subjects of these various disciplines will also shed a light on a considered problem. Maybe it is just a matter of favorable decision made by scientific environments which term to use to maintain some differences and independence dealing with common interests at the same time; or simply created tautologies, pleonasms, or rather lexical doublets, which means that they can be exchanged in any context, [2]-[3], [5].

Astrobiology as a science?. In this part methodological status of astrobiology as a science is considered. Astrobiology refers to meta-science with a multidisciplinary character and interdisciplinary studies, which can be classified as a complex science (such as cybernetics) [3]. It has its own more-less defined subject, questions, language and methods which were and still are under debate among many scientists, [4], [6].

References: [1] Briot D. et al. (2004) *ASP Conference Series 321*, 219-220. [2] Chyba C. and Hand K. P. (2005) *Annu. Rev. Astron. Astrophys, 43,* 31-74. [3] Cockell C. (2001) *Space Policy 18*, 263-66. [4] Cockell C. (2001) *Interdiscipl. Sci. Rev. 26*, 90-6. [5] Dick S. (2000) *ASP Conference Series 213*, 649-59 [6] Jakosky B. (2000) *ASP Conference Series 213,* 661-66. [7] Horneck G. (1995) *Planet. Space Sci*, 43, 189-217. [8] Lafleur L. (1941) *Leaflet 143,* 333-40. [9] Lemarchand G. (2000) *ASP Conference Series 213*, 7-18. [10] Martínez-Frías J. and Hochberg D. (*2007) Interdiscipl. Sci. Rev., 32*, 315-319.

Table 1. Terminological attempts to name the aspects of life in the Universe, [1], [2], [8], [9].

Author	Year	Characteristics
Lafleur L. J.	1941	First coined term of astrobiology ('the subject of astrobiology – the consideration of life in the universe elsewhere than on earth')
Tikhov G. A.	1949	Establishment of field of knowledge combining astronomy and botany: astrobotany. Publication of 'Astrobotany'
Bernal J. D.	1952	Speculation about rule of biology (origin of life) in the Universe; definition of cosmobiology ('the biology of the future would not be confined to Earth, but would take the character of cosmobiology')
Tikhov G. A.	1953	Publication of 'Astrobiology'
Struve O.	1955	Designation of astrobiology for defining the broadest field of investigation 'life beyond the Earth'
Pereira F. A.	1956	Publication of 'Introdução à Astrobiologia'
Lederberg J.	1960	Using a term exobiology for describing 'an extraterrestrial origin of biology'
Oliver B. M., Billingham J.	1972	Using a notion biocosmology for describing a world view of Universe full of life, similar in status to the Copernican and Darwinian world views