

## ASTROBIOLOGY IN SECONDARY EDUCATION: A DIAGNOSIS OF PRIOR KNOWLEDGE

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**Astrobiology as an interdisciplinary science, it takes advantage of the scientific and technological development of several disciplines to complement its object of study which is the origin, development and prospects of life in the universe (Horneck & Baumstark-Khan 2012). The above confers didactic importance because astrobiological knowledge will relate the integrality of the natural sciences, and will allow the development of argued positions against pseudosciences, conspiracies and information without scientific basis.**

This research seeks to characterize the previous knowledge about astronomy of 25 students between 10 and 16 years of age in secondary education in a Colombian educational institution, as a basis for proposing future didactic innovations in the field of astrobiology teaching. A structured questionnaire with 6 open-ended questions was used, on which a statistical percentage analysis was applied, and the following results were obtained.

When asked how the universe originated, 76% of the students recognize the Big Bang as the most accepted theory, 24% only state the theory, but do not present arguments that show their appropriation of it or state that they are not sure of their answer. Regarding the concept of life and the main characteristics of living beings, 36% of the students are close to the concept, the remaining 64% propose some philosophical terms and show an understanding of life as a characteristic of animals. Similarly, on the origin of life on Earth, 68% of the students express creationist alternatives or with philosophical foundations such as the origin from water, while 12% state evolution as the origin of life, which is not a pertinent explanation, 8% relate panspermia as a theory and 12% describe the primitive pond theory.

Regarding the conditions for planetary habitability, 80% of the students consider that an atmosphere is necessary, 72% liquid water, 16% water in a gaseous state, 8% ice, 44% proximity to the star, 36% a magnetic field, 32% organic molecules. When asked about which elements would make up the molecules that constitute living beings, 40% of the students recognized carbon, hydrogen, oxygen, nitrogen, phosphorus and sulphur.

Finally, 68% of the students believe in the existence of life on other planets and relate alternative concepts such as the existence of Aliens, and even go so far as to suggest that some astronauts have left the Earth's orbit and inhabit other planets. orbit and inhabit other planets.

Several alternative concepts and perceptions about astrobiology were identified, as well as the lack of scientific training in the area, this poses as a challenge a didactic feedback that favours the conceptual appropriation of students from the approach to the sources of scientific research production and a correct didactic transposition of astrobiology in the Colombian curriculum.

To achieve progress in this purpose, it is necessary to rethink the relationship between science outreach and science education, to recognize places with astrobiological potential and develop training activities from these spaces, to permeate the difficulties in teacher training so that didactic proposals are generated from the astrobiological potentialities, raised from the natural sciences linked to the country's curricula.

### REFERENCES

- Horneck, G., & Baumstark-Khan, C. (eds.) 2012, *Astrobiology: the quest for the conditions of life*. Springer Science & Business Media

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