

EDITORIAL

MICROSCALE SCIENCE

Temechegn Engida
Email: temechegn@gmail.com

ABSTRACT

Microscale science (also called microscience) is becoming the focus of science education in many countries. Science has been treated, unfortunately, as a theoretical enterprise. The major reason for the limited practical activities is lack of resource/financial burden on governments. As a result, many science educators and international organizations have come up with an alternative approach called Microscience. [*African Journal of Chemical Education—AJCE 9(3), November 2019*]

Science has been known as the most practical/experimental subject in spite of the fact that it is treated as a theoretical subject, mostly in African schools. The major reason for the limited practical activities is lack of resource/financial burden on governments. As a result, many science educators and international organizations have come up with an alternative approach called Microscience.

It is argued that microscale techniques (or microscience experiments) help to reduce environmental pollution, costs, exposure to chemicals, experimentation time, space, fear to chemicals, raw material depletion, etc. They also help to increase environmental awareness, safety, savings, experimental variety and easiness [1]. According to UNESCO [2], one of the most direct methods of enabling schools and students scientifically is through Microscience kits. Such microscale practical approach to experiencing science is a part of the UNESCO Global Microscience Experiments Project [3], with centers located in places such as South Africa, Cameroon and Norway.

The UNESCO Microscience kits are veritable mini-laboratories. The main advantages are [3]:

- cost effective and safe, in so far as pupils never need to use more than a couple of drops of chemicals for each experiment.
- affordable and far cheaper than conventional laboratory equipment and materials.
- each kit is compact, can be reused and is unbreakable.
- the small quantities of chemicals used make the methodology environmentally sound.
- the pedagogical importance of this practical science education tool for capacity building in scientific thinking is high.
- can be very easily adapted to any national curriculum by local specialists. Consequently, they can be considered as universal models for easy adaptation for any educational needs.

The main objectives of the UNESCO's Global Microscience Experiments Project are:

- To promote practical science experimentation using Microscience as an advocacy tool amongst policy makers

- To improve science curricula by inclusion of hands-on experimentation for a better understanding of science
- To increase the interest of young people in science so as to promote gender equality, scientific literacy and the choice of a scientific career
- To promote capacity building for science education and enhance development of scientific thinking and experimentation for pupils

The scientific community recognized the place of microscience in promoting and enhancing science education long time ago. The first International Symposium on Microscale Chemistry (ISMC) was held in 2001 in Mexico City. Since then it became a regular event and the 10th in the series was held in June, 2019 at the North-West University campus in Potchefstroom, South Africa. This event was supported by IUPAC.

This Special Issue of the African Journal of Chemical Education (AJCE) is devoted to papers presented at the 10th ISMC and reviewed by specialist in the field of microscience.

REFERENCES

1. Jorge G. Ibanez (2012). Miniaturizing Chemistry: The Ecological Alternative. AJCE, 2(1), pp. 2-8.
2. UNESCO (2011). <http://www.unesco.org/new/en/natural-sciences/special-themes/science-education/basic-sciences/microscience/>
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SJIF IMPACT FACTOR EVALUATION [SJIF 2012 = 3.963]

SJIF IMPACT FACTOR EVALUATION [SJIF 2013 = 4.567]

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