Editorial

Agricultural research and the sustainable productivity

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The world's poor in rural areas, agriculture production is the major source of income and development. Agriculture faces many challenges, making it more difficult to reach its main goals for fulfilling the food needs of the world. The high increase in population and the rising incomes that lead to the change in diet increases the demand for agricultural products, while the food systems globally are dramatically threatening by land degradation, climate change, Abiotic stress (e.g. drought, salt, heat or desertification) represent the major limiting environmental factors affecting agricultural productivity in many parts of the world especially in parts of the developing world. On the other hand, biotic stresses (pests and diseases) are destroying more than 20% of the world production. A part of these production losses will be enough to feed more than billions of poor people in the world.

Agriculture must change to conform to the world's rising demand, to contribute more effectively to the diminution of poverty and malnutrition, and to become ecologically more sustainable. This transformation will be crucial for achieving the sustainable development goals. Large investments in agriculture, including strong research and development capacity are an urgent need for agricultural development.

The main role of scientific research in agriculture, such as, biotechnology, irrigation, nutrition, breeding... etc., has been to help us generate new technologies that allow us to increase the production of the land area with less effort and also to control the unfavorable factors that limit the expansion of agriculture lands and production to avoid the impending catastrophe.

Biotechnology research in agriculture, including conventional plant breeding, tissue culture and micropropagation, molecular breeding or marker assisted selection, genetic engineering and GM crops and Molecular Diagnostic Tools, is one of the promising tools that can be applied to many areas of agriculture development to increase production and overcome the biotic and abiotic factors that negatively affecting the agricultural production quantitatively and qualitatively.

In this issue of advances in plants & agriculture research, there are many valuable reviews and research articles focusing on new promising technologies that improve irrigation water quality and also crop production as well as a review of the mechanisms and plant responses towards different abiotic stresses. All of these articles are a very good contribution to the agricultural research towards a better understanding and a high agricultural production.

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Conflict of interest

The author declares no conflict of interest.