# Formulations for improving agricultural production in drought conditions

**The CSIC has developed a series of formulations based on organic molecules that improve the tolerance of plants to severe drought and salinity conditions. This is increasingly a problem in agricultural production, resulting in major financial losses. Its origin lies principally in desertification of the environment, due to climate change or irrigation with low-quality water containing high salt concentrations.**
**Industrial partners active in the agrochemical sector are being sought, so as to incorporate these formulations into their product catalogues, through a patent license agreement.**

***An offer for Patent Licensing***

## Improving plant tolerance

Long-term lack of rainfall is intensifying and accelerating the environmental impact of agricultural activity, inducing overexploitation of wells and aquifers and causing serious environmental damage through salinization of soils and natural water reserves.

Salinity in the soil and irrigation water reduces water absorption by plants to the point of causing dehydration in the leaves and reducing fruit size. It also results in nutritional imbalance, which causes fruits to rot, reducing crop productivity.

The present invention consists of new compositions based on natural amino acids. When applied to plants, these improve tolerance to adverse conditions caused by the lack of water and high salt concentrations in the medium.

Certain amino acids are able to stimulate the natural mechanisms of plants. This allows them to overcome adverse conditions like water and salt stress, significantly improving their biomass production. The effect of this selection of amino acids is clearly superior to other commercial products.

The lack of access to water by plants is one of the determining factors behind declining productivity of agricultural crops.

## Main innovations and advantages

Use of these compounds has a number of advantages:

- They are naturally occurring amino acids or biodegradable derivatives that minimize environmental impact.
- The recommended application method is by spraying the formulations on the aerial part of the plant. They may otherwise be applied directly to the soil or other growth medium, or indirectly via irrigation water. Handling by operators involves no toxicity risk.
- The formulations can be used in conjunction with other active ingredients such as bactericides, herbicides, growth-regulators, fertilizers, etc.

Plants highly sensitive to salt concentrations can benefit greatly, including tomato, pumpkin, potato, carrot, aubergine/eggplant, onion, and citrus fruits.

## Patent Status

Patent application filed

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