

Is maize bushy stunt phytoplasma a new phytoplasma species restricted to the Americas?

Edel Pérez-López

Maize (*Zea mays* L.) is a critically important cereal crop within the world's food supply, ranking third in harvested tonnage after wheat and rice. Each year, an average of 380 million tons are produced worldwide within **53 countries**. Corn is cultivated abundantly in nearly all countries of the tropical regions. In tropical and subtropical areas of the Americas, maize is often affected by a serious disease caused by an insect-vector bacteria from the genus '*Candidatus Phytoplasma*' spp.

Maize bushy stunt (MBS) was detected for the first time in 1955 in Mexico. Its association with a phytoplasma was determined 20 years later. MBS phytoplasma (MBSP) has since been detected throughout Central and South America, and more recently in Mexico in association with **native corn** varieties. MBSP is known to be transmitted by leafhoppers of the **genus *Dalbulus***, suggesting the possibility of host specialization and an evolutionary relationship among the plant, vector, and bacterium. MBS symptoms, which have been previously reported to affect both commercial varieties and native corn, include reddening, yellowing of leaves, stunted growth, and bushy morphological characteristics.



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According to the Phytoplasma taxonomy group, new taxa within '*Ca. Phytoplasma*' can be described —besides other criteria— if the strain clearly represents a population that is ecologically separated from the species to which it is related.

The genus *Dalbulus* along with the phytoplasma strain causing maize bushy stunt disease are limited to the Americas, from South USA to Argentina and Chile. Based on this vector distribution, and the unique host-pathogen interaction represented by *Dalbulus* spp.-maize, MBS phytoplasma seems to represent an ecologically separate population, in which case, it would be recognized as a novel taxon.

If the acceptance of MBS phytoplasma as a novel taxon happens some day in the near future, remember we suggested it first in this blog.



Edel Pérez-López

Department of Biology, University of Saskatchewan
Saskatoon,
SK, Canada

Images

Symptoms of maize bushy stunt in native corn. Photo by Edel Pérez-López

Dorsal view of the leafhopper *Dalbulus elimatus*, a MBS Phytoplasma vector. Photo by Edel Pérez-López

Maize field in Nayarit, Mexico. Photo by **Eloise Phipps/CIMMYT (CC BY-NC-SA 2.0)**

References

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