# Article information:

Natural variation of an EF-hand Ca2+-binding-protein coding gene confers saline-alkaline tolerance in maize | Nature Communications  
<https://www.nature.com/articles/s41467-019-14027-y>

# Article summary:

1. Saline-alkaline stress is a major constraint of global crop production, causing combined damages of high pH stress, ion toxicity, and osmotic stress.

2. Plants have evolved adaptive strategies to cope with saline-alkaline stress, such as H+ efflux from root to soil acidifies the rhizosphere and Na+ selective transporters that enable circumvention of Na+ toxicity.

3. A calcium-binding EF-hand protein ZmNSA1 underlies the natural variations of shoot-Na+ contents under NaHCO3 condition by a GWAS analysis, which increases root Na+ efflux and promotes shoot Na+ exclusion and saline-alkaline tolerance.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is overall reliable in terms of its content and sources. The authors provide evidence for their claims through references to previous studies in Arabidopsis, as well as providing an overview of the current understanding of how plants sense saline-alkaline stress and convert it into second signaling messengers (e.g., Ca2+). The authors also provide evidence for their claim that a calcium-binding EF-hand protein ZmNSA1 underlies the natural variations of shoot-Na+ contents under NaHCO3 condition by a GWAS analysis.

However, there are some potential biases in the article that should be noted. For example, the authors focus mainly on how plants can adapt to saline-alkaline conditions without exploring any potential risks or negative impacts associated with this adaptation process. Additionally, while the authors provide evidence for their claims regarding ZmNSA1's role in promoting shoot Na+ exclusion and saline-alkaline tolerance, they do not explore any counterarguments or alternative explanations for this phenomenon. Furthermore, while the article does present both sides equally in terms of discussing adaptive strategies used by plants to cope with saline-alkaline stress, it does not explore any other potential strategies or solutions that could be used to mitigate this type of environmental stressor. Finally, there is no mention of promotional content or partiality in the article; however, it should be noted that further research may be needed to confirm these findings before they can be applied more broadly in agricultural settings.

# Topics for further research:

* Saline-alkaline stress impacts on plants
* Alternative strategies for mitigating saline-alkaline stress
* Potential risks associated with plant adaptation to saline-alkaline stress
* Role of calcium-binding EF-hand proteins in plant adaptation
* Application of GWAS analysis to study plant adaptation
* Agricultural implications of plant adaptation to saline-alkaline stress

# Report location:

<https://www.fullpicture.app/item/371102f75504fb2b6d5f132308e9252b>