# Article information:

New evidence defining the evolutionary path of aquaporins regulating silicon uptake in land plants | Journal of Experimental Botany | Oxford Academic
<https://academic.oup.com/jxb/article/71/21/6775/5876217?login=true>

# Article summary:

1. Si accumulation varies among plant species, and the ability to absorb Si is linked to the benefits derived from it.

2. Nodulin 26-like intrinsic proteins III (NIP-IIIs) are responsible for forming Si channels in plants, and their evolution dates back at least 515 million years ago.

3. The discovery of Si transporters in rice has provided a foundation for understanding the molecular mechanisms involved in Si uptake by plants. AQPs, a class of channel-forming proteins, facilitate the transport of Si into plants through specific influx transporters.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

该文章主要探讨了植物吸收硅的机制和进化历程。然而，文章存在一些偏见和不足之处。

首先，文章过于强调硅对植物的益处，而忽略了其可能的负面影响。硅在土壤中的含量过高会导致土壤酸化和毒性增加，从而影响植物生长和产量。此外，硅对环境污染也有一定贡献。因此，在研究硅对植物的作用时应该更加全面地考虑其可能的风险。

其次，文章没有充分考虑实验条件对结果的影响。如文中所述，不同实验条件下测得的植物吸收硅含量可能存在较大差异。因此，在比较不同植物种类时需要使用相同的实验条件，并进行数据标准化处理以消除实验误差。

另外，文章提出了NIP-III蛋白在植物进化中起到重要作用的观点，但并未提供足够的证据来支持这一观点。作者只是通过分析1000多个物种中NIP-III蛋白的存在情况来推断其在进化历程中的作用，并未进行更深入的实验验证。因此，这一观点仍需要更多的研究来证实。

最后，文章没有充分考虑植物吸收硅的机制对不同环境条件下植物生长和产量的影响。不同种类的植物在不同环境条件下可能表现出不同的硅吸收能力和效果。因此，在研究植物吸收硅的机制时需要更加全面地考虑其对植物生长和产量的影响。

综上所述，该文章存在一些偏见和不足之处，需要更加全面地考虑硅对植物和环境的影响，并进行更深入的实验验证来支持其观点。

# Topics for further research:

* Negative effects of high silicon content in soil
* Standardization of experimental conditions for comparing different plant species
* Need for further experimental validation of the role of NIP-III protein in plant evolution
* Effects of silicon absorption mechanism on plant growth and yield under different environmental conditions
* Comprehensive consideration of the impact of silicon on plants and the environment
* Need for more in-depth research to support the article's viewpoints

# Report location:

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