# Article information:

Frontiers | Charring-induced morphological changes of Chinese “Five Grains”: An experimental study  
<https://www.frontiersin.org/articles/10.3389/fpls.2023.1063617/full>

# Article summary:

1. The “Five Grains” of ancient China, including bread wheat, foxtail millet, broomcorn millet, rice and soybean, have been an important part of Chinese civilization since the Longshan period (4300 – 3800 BP).

2. Charring is an incomplete combustion process that can make seeds resistant to biological degradation and microbial attack while causing their morphological change.

3. There is often disagreement between the interpretation of charred plant remains and other proxies such as phytoliths and crop stable isotopes in terms of human diet.

# 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 provides a comprehensive overview of the charring-induced morphological changes of Chinese “Five Grains”. The article is well-researched and provides evidence from archaeological findings to support its claims. However, there are some potential biases that should be noted. For example, the article does not explore counterarguments or present both sides equally when discussing the disagreement between charred plant remains and other proxies such as phytoliths and crop stable isotopes in terms of human diet. Additionally, the article does not provide any evidence for its claims about charring being an incomplete combustion process that can make seeds resistant to biological degradation and microbial attack while causing their morphological change. Furthermore, it does not mention any possible risks associated with charring or discuss any potential negative impacts on grain cultivation due to charring-induced morphological changes. In conclusion, while this article provides a comprehensive overview of the topic at hand, it could benefit from further exploration into counterarguments and potential risks associated with charring in order to provide a more balanced view on the subject matter.

# Topics for further research:

* Charring-induced morphological changes risks
* Charring and grain cultivation
* Charring and microbial attack
* Charred plant remains and phytoliths
* Charring and incomplete combustion
* Crop stable isotopes and human diet

# Report location:

<https://www.fullpicture.app/item/e1fa5b8dba72ff25385924fe74cf0f4e>