

GROWTH AND YIELD OF CHICKPEA CULTIVAR UNDER RISING ATMOSPHERIC CO₂

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INTRODUCTION

- There are numerous reports to demonstrate that rising atmospheric CO₂ may affect the productivity of crop plants, particularly in C₃ crop species through photosynthetic enhancement and improved water use efficiency.
- Chickpea is an important pulse crop in semiarid regions of the world and contributes up to 67% pulse production globally.
- This study is an first attempt focused on the impact of rising CO₂ on growth and yield of chickpea.

SUMMARY and CONCLUSIONS

Chickpea plants exhibited expansive growth under elevated CO₂, which lead to greater main shoot length, elongation of branches, individual leaf area and leaf area per plant and drymass. Number of branches increased marginally.

Accumulation of sugars and starch in the leaves of elevated CO₂ grown plants reflects higher photosynthetic carbon assimilation. However, percent nitrogen declined due to dilution effect and resulted in higher C:N ratio.

Increase in seed yield at elevated CO₂ was mainly attributed to increase in number of pods and seeds per plant due to elongation of branches.

Chickpea is C₃ crop species and has abundant sink potential due indeterminate growth pattern and performing biological N₂ fixation. It can have better advantage of rising atmospheric CO₂ in terms of increase in growth and yield in near future but reduction in nitrogen concentration may affect its nutritional value.