

Advanced R Homework_1

24204862-Bhargava K

Introduction:

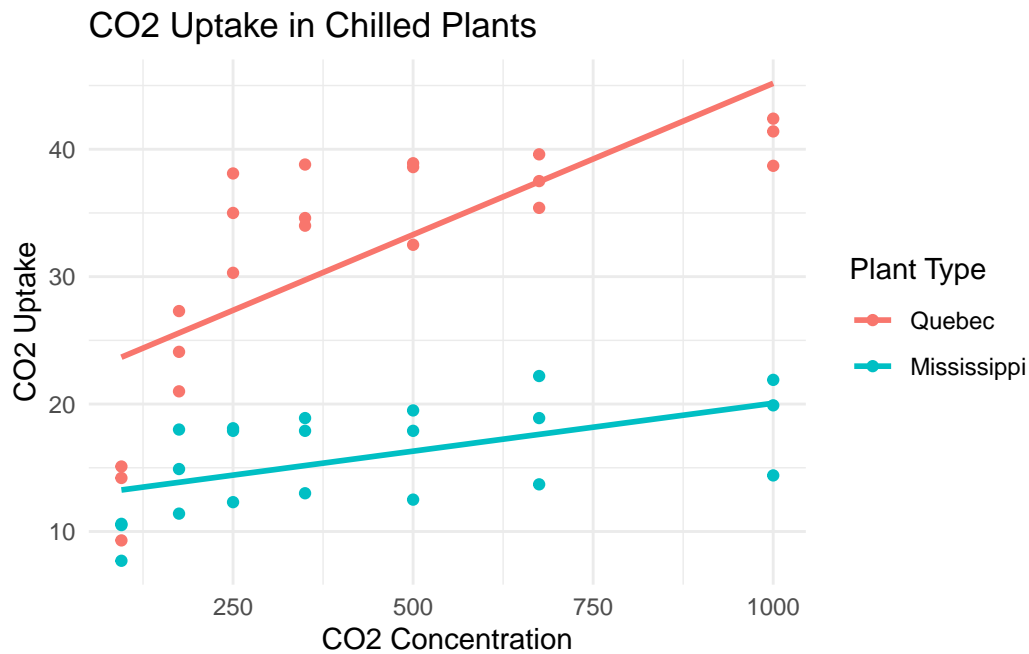
The CO2 dataset was utilized in this task. Measurements of plants uptake of carbon dioxide in various environmental are included in this dataset.

	Plant	Type	Treatment	conc	uptake
1	Qn1	Quebec	nonchilled	95	16.0
2	Qn1	Quebec	nonchilled	175	30.4
3	Qn1	Quebec	nonchilled	250	34.8
4	Qn1	Quebec	nonchilled	350	37.2
5	Qn1	Quebec	nonchilled	500	35.3
6	Qn1	Quebec	nonchilled	675	39.2

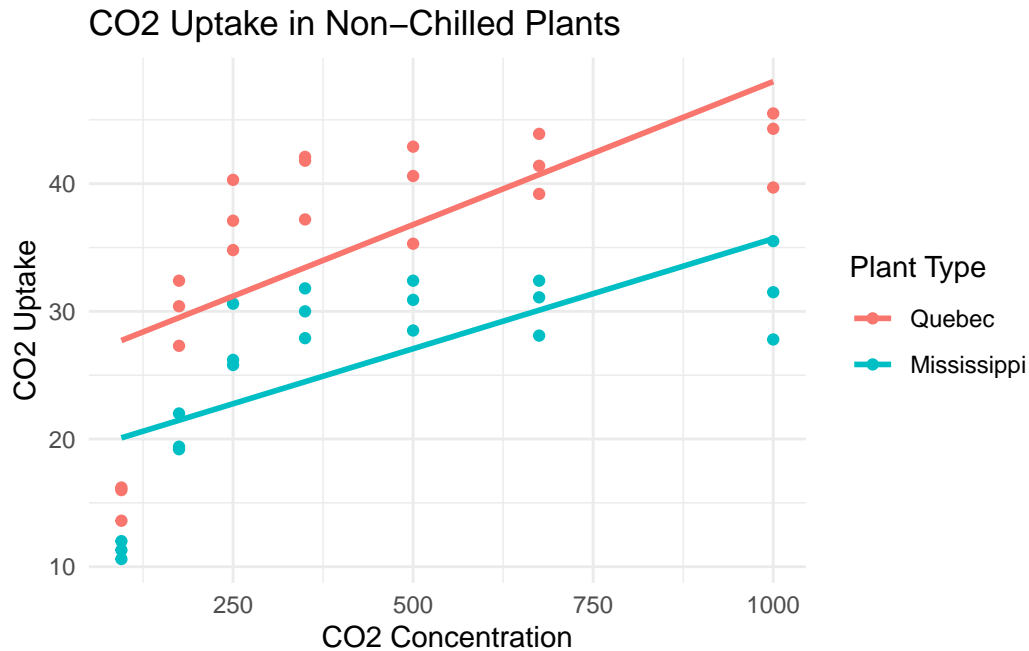
The variables include:

- **Plant:** Plant ID
- **Type:** Plant origin (Quebec or Mississippi)
- **Treatment:** Whether the plant was chilled or not
- **conc:** Ambient CO2 concentration
- **uptake:** Rate of CO2 absorption (*response variable*)

Plotting the dataset



- As CO₂ concentration goes up, both types of plants absorb more CO₂. This is expected because more CO₂ in the air generally means more available for photosynthesis.
- At every concentration level, Quebec plants show higher uptake than Mississippi plants. Their red trend line is steeper and higher, indicating stronger CO₂ absorption.
- Since this plot is only for chilled plants, it suggests that Quebec plants are more efficient at CO₂ uptake under cold conditions compared to Mississippi plants.



- As the concentration of CO₂ goes up, the uptake rate also increases for both Quebec and Mississippi plants.
- Compared to the chilled plot, Mississippi plants have higher uptake rates here. That means warmer conditions helped them absorb more CO₂.
- Quebec plants still outperform Mississippi plants across all CO₂ levels, their line is higher and steeper.
- The difference in uptake between the two plant types is smaller under non-chilled conditions, meaning Mississippi plants benefited more from the warmth than Quebec plants did.