

## [P4] Crop Genetics and Physiology

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 4 (Poster) (Crop Genetics and Physiology)

1:15 PM - 2:00 PM

### [P4-38]Daytime or Nighttime: When Plant Roots Uptake Nitrogen?

\*Nominated for Presentation Awards

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When plant roots uptake nitrogen (N)? for this question, limited information is available. To answer this question, we monitored N uptake rate and transpiration during daytime and nighttime. Rice cultivar Hitomebore (*Oryza sativa*. L) was grown hydroponically in growth chamber (12h light; daytime and 12h dark; nighttime) under 26° C & 60~70% humidity. NH<sub>4</sub>Cl was used as N source and two treatments were conducted as "Full N" (1mM N for 24h fed), "Half N" (0.5mM N for 24h fed) for 31~32 days in two cycles. N uptake rate (per plant) increased with days either during daytime or nighttime as plant growth progress. The N uptake rate in nighttime was slightly lower than daytime by 17~39% for "Full N" and 24~31% for Half N. There are close and positive correlation between N uptake rate and transpiration rate for each daytime and nighttime, but the slope of the relation differed between daytime and nighttime, because transpiration rate in nighttime was significantly lower than daytime by 78~79% for "Full N" and 80~81% for "Half N". In conclusion, rice plants absorbed N more in daytime than nighttime, and there is great difference in contribution of transpiration to N uptake between daytime and nighttime.