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PE-8 Water relations of two mangrove species in two different sites in the Okukubi River referring the seasonal change in leaf water potential

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Water relations of two mangrove species, *Bruguiera gymnorrhiza* (L.) Lamk. and *Kandelia obovata* (S., L.) Yong, were studied in the mangrove forest along the Okukubi River in Okinawa Island, Japan. This study site belongs to the subtropical region, and the minimum and maximum mean daily temperatures during the study period (Mar. 2006 – Jan. 2008) were 12.5°C in February 2007 and 30.4°C in July 2006, respectively. The water potential was measured hourly from dawn to early evening for each species. This measurement was carried out monthly or bimonthly in an upstream site using a pressure volume chamber (Model 1000, PMS Instruments Co., USA). The same measurement was also carried out in downstream and upstream sites in December 2007. Simultaneously, pressure volume curves were measured for 6 leaves in each species and site for estimating turgor loss point (tlp). The pore water salinity was 0.5‰ in the upstream and 2.7‰ in the downstream. The daily minimum water potential (Ψ_{\min}) did not show any clear seasonal trends. On the other hand, an apparent seasonal trend in the daily maximum water potential (Ψ_{\max}) was found for each species. The Ψ_{\max} for each species decreased during cold seasons and later increased gradually during warm seasons. In general, the water potential decreased during the midday and increased during the nighttime respectively owing to transpiration and water uptake. The water uptake during the nighttime may be limited due to low temperature in the present study sites, because Ψ_{\max} at dawn was quite low in cold seasons. The Ψ_{\min} and Ψ_{\max} in the downstream site were lower than those in the upstream site for each species in December 2007. The tlp was also lower in the downstream site (*B. gymnorrhiza*, -3.88 ± 0.21 (SE) Mpa; *K. obovata*, -3.68 ± 0.07 (SE) Mpa) than in the upstream site (*B. gymnorrhiza*, -3.85 ± 0.10 (SE) Mpa; *K. obovata*, -3.41 ± 0.12 (SE) Mpa) for each species, though the differences between sites were insignificant for *B. gymnorrhiza* (Bonferroni post hoc test, $p > 0.05$). These results show that in the downstream site, the water uptake is limited due to high salinity, so that both species decrease tlp to resist the high saline environment.