

Author: [ADVANCED](#)Volume Page Keyword: 
[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1349-1008

PRINT ISSN : 1343-943X

Plant Production Science

Vol. 10 (2007) , No. 1 91-98


[\[PDF \(1066K\)\]](#) [\[References\]](#)

Specific Variation in Shoot Growth and Root Traits under Waterlogging Conditions of the Seedlings of Tribe Triticeae Including Mizutakamoji (*Agropyron humidum*)

[Katashi Kubo](#)¹⁾, [Yumi Shimazaki](#)¹⁾, [Hiroyuki Kobayashi](#)¹⁾ and [Atsushi Oyanagi](#)¹⁾

1) National Agricultural Research Center for Tohoku Region NARCT

(Received: March 23, 2006)

Abstract: Waterlogging stress is an important limiting factor for wheat and barley production. Waterlogging tolerance was evaluated in the seedlings of seven species from the tribe Triticeae, including wheat, barley, durum wheat, rye (diploid and tetraploid), triticale, einkorn wheat, and Mizutakamoji (*Agropyron humidum*), to acquire basic information about their variation in waterlogging tolerance and to elucidate opportunities for genetic improvement of waterlogging tolerance in cultivated wheat and barley. The seedlings at the one leaf stage were subjected to waterlogging for 0 (Control: CT) or 12 days (Waterlogging: WT) in plastic cups (12 cm tall, 8 cm in diameter), and the morphological traits of shoots and roots were measured. Shoot dry weights (DW) of wheat (cv. Norin 61) and barley (cv. Benkeimugi) were lower under WT by 73% and 59%, respectively, than those in CT. Of all the evaluated genotypes, only *A. humidum* showed no reduction in shoot DW under WT. The relative shoot DW (W/C in shoot DW; proportion of shoot DW in WT to that in CT) was significantly correlated with relative root DW (W/C in root DW). The W/C in root DW correlated significantly with W/C in the number and length of adventitious roots, and with W/C in frequency of branching roots on the seminal root, suggesting that development of adventitious roots and branching roots under WT might be related to waterlogging tolerance in tribe Triticeae. The results of this study indicated that wild species of tribe Triticeae, such as *A. humidum*, might be useful resources to analyze waterlogging tolerance in cultivated wheat and barley.

Keywords: [Adventitious roots](#), [Agropyron humidum](#), [Branching roots](#), [Elymus humidus](#), [Flooding](#), [Triticeae](#), [Waterlogging](#), [Wheat](#)



[\[PDF \(1066K\)\]](#) [\[References\]](#)

Download Meta of Article [\[Help\]](#)

[RIS](#)

[BibTeX](#)

To cite this article:

Katashi Kubo, Yumi Shimazaki, Hiroyuki Kobayashi and Atsushi Oyanagi: "Specific Variation in Shoot Growth and Root Traits under Waterlogging Conditions of the Seedlings of Tribe Triticeae Including Mizutakamoji (*Agropyron humidum*)". Plant Production Science, Vol. **10**, pp.91-98 (2007) .

doi:10.1626/pps.10.91

JOI JST.JSTAGE/pps/10.91

Copyright (c) 2007 by The Crop Science Society of Japan



[Japan Science and Technology Information Aggregator, Electronic](#)

