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Shinji Fujii[a,*] and Masayuki Maki[b]: **Dauciform Roots in *Aletris spicata* (*Nartheciaceae*)**

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Summary: We report dauciform roots in *Aletris spicata* (Thunb.) Franch. Swollen dauciform roots were observed in all populations of the species examined, while a similar root structure was not observed in the congeneric species *A. foliata* (Maxim.) Bureau & Franch. The description and illustrations in *Flora Reipublicae Popularis Sinicae* 15 indicated that both of *A. spicata* in China *and A. capitata* in China also have dauciform roots. To date, such roots have been reported in *Cyperaceae* and *Juncaceae*; this is a confirmation of dauciform roots in *Nartheciaceae* in Japanese species.

As defined by Lamont (1974), dauciform roots are carrot-shaped, short lateral roots that develop remarkably dense clusters of long root hairs (detailed description in Davies et al. 1973, Lamont 1974, 1981, 1982). Although this root type is structurally distinct from cluster roots, such as the proteoid roots (Dinkelaker et al. 1995, Watt and Evans 1999) found in *Proteaceae* and *Fabaceae* and the capillaroid roots (Lamont 1982, Lambers et al. 2006) found in *Restionaceae*, the physiological function is considered to be analogous to that of these cluster roots. These specialized root formations are suppressed by phosphorus (P) supply, suggesting that they have an adaptive function for low-fertility soils (Shane et al. 2005, 2006). In fact, plant species with clustering or dauciform roots are frequently observed in P-deficient or P-binding soils (Lambers et al. 2012). To date, dauciform roots have been reported in *Cyperaceae* and *Juncaceae* (Lamont 1981). Although many *Cyperaceae* species have dauciform roots (Konoplenko et al. 2017), they are restricted to only two tribes (Shane et

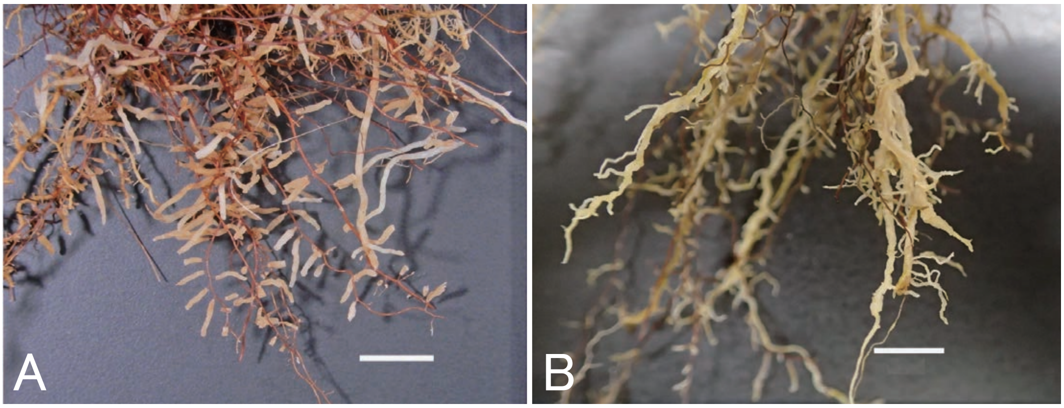

Fig. 1. Root systems of *Aletris spicata* and *A. foliate.* A. *A. spicata* (Okazaki, Aichi Pref., S.Fujii 10079, KYO, MAK, OSA, TNS). B. *A. foliata* (Mt. Hakkoda, Aomori Pref., T.Ito TI6837, TUS). Scale bars: 1 cm.

Aletris foliata (Maxim.) Bureau & Franch.

Voucher specimen: **JAPAN. Honshu**. Aomori Pref., Mt. Hakkoda, 18 Aug. 2020, T.Ito TI6837 (TUS).

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藤井伸二[a]，牧 雅之[b]：**ソクシンラン（キンコウカ科）におけるニンジン型根**

ソクシンラン（キンコウカ科）がニンジン型根dauciform rootを持つことを見いだしたので報告する．日本国内で観察したソクシンランのすべての個体群でニンジン型根が確認されたが，同属のネバリノギランでは同様の形態は観察されなかった．また，中国植物誌15巻(1978)の記載と図から中国産ソクシンランと*Aletris capitata*もニンジン型根を持つことが確認できた．ニンジン型根はこれまでカヤツリグサ科とイグサ科から知られていたが，キンコウカ科では初めての確認である．

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