
Roegneria tridentata, a New Species of Triticeae (Poaceae) from Qinghai, China

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ABSTRACT. *Roegneria tridentata* is described and illustrated, and its karyotype is characterized.

Roegneria tridentata was discovered during our fieldwork in 1992 in the Qi-lain Mt. on the northern border of Qinghai province, China. A few weeks later, it was collected in the A'Nyemaqen Mt. The two localities are more than 400 km apart.

***Roegneria tridentata* Yen & J. L. Yang, sp. nov.**

TYPE: China. Qinghai: Wenquan, Xinhai, km 337 on highway 214, rocky slope, 3,750 m, 19 Sep. 1992, *J. L. Yang et al. no. 9202014* (holotype, Sichuan Agricultural University Triticeae Institute; isotype, MO). Figure 1.

Herba perennis caespitosa. Culmi 42–65 cm alti. Laminae 5–7 cm longae, ca. 2 mm latae, inferne glabrae, superne adpressae dense pubescentibus in projectis nervis. Spicae 5–11.5 cm longae, spiculae solitariae, 10–13 mm longae, 4- vel 5-florae; glumae oblongae vel oblongo-ellipticae, primae 4–5 mm longae, secundae 5–6.5 mm longae, glabrae; lemmata oblongo-lanceolata, (7–)8–9 mm longa, primo 9 mm longo, 5-nervia, apices truncati et tridentati, dentes ca. 0.5 mm longi, saepe nervo medio prominente in 0.5–1 mm longo mucronem producta; paleae apice truncatae, inter carinas scabrae, ad carinas $\frac{1}{3}$ – $\frac{1}{2}$ superiore setuloso-ciliata.

Herbs perennial. Culms caespitose, erect or slightly procumbent, geniculate at base, 42–65 cm tall, ca. 1.5–2 mm diam., with 2 or 3 nodes, smooth, glabrous. Leaf sheaths glabrous, persistent basal ones 2–4 cm long; ligule scarious, truncate premorse, ca. 0.5 mm long; blades involute or subinvolute, 5–7 cm long, ca. 2 mm broad; tillers narrowly linear, usually to 20 cm long, glabrous beneath, appressed

densely pubescent on projecting veins of upper surface. Spikes erect, purple or greenish purple, 5–11.5 cm long, ca. 5 mm broad, with 6–14 spikelets; upper rachis internodes 5–10 mm long, the lower 15–20 mm, both glabrous, hirsute on angles; spikelets solitary, 10–13 mm long, ca. 2 mm broad, with 4 or 5 florets; rachilla internodes appressed puberulent, 1.5–2 mm long; glumes oblong or oblongo-elliptic, unequal, apically rounded-obtuse, rarely acute, slightly oblique; first glume 4–5 mm long; second glume 5–6.5 mm long, with 3(–5) projected veins, glabrous, sometimes sparsely short spinulose on veins; lemmas oblong-lanceolate, (7–)8–9 mm long, 5-veined, appressed white pubescent on lateral and lower parts, apically truncate and 3-toothed, the teeth ca. 0.5 mm long, sometimes midvein extending into a mucro to 0.5–1 mm long; callus obtuse, puberulent on the sides; paleas shorter to longer than lemmas, apically truncate, scabrous between keels, setulous-ciliate on upper $\frac{1}{3}$ – $\frac{1}{2}$ of keel; anthers black, ca. 2 mm long. Chromosome number: $2n = 6x = 42$ (Fig. 2).

The characteristic awnless, 3-toothed lemmas (Fig. 1c) readily distinguish the species from other members of *Roegneria* C. Koch and from members of related genera.

Root tips of young seedlings (ca. 2.5 cm long) were collected at 10:00 A.M. and placed in water at 3–4°C for 24 hours. They were transferred to 20 ml 0.01% colchicine solution with 5 drops of dimethyl-sulfoxide and kept for 3 hours before fixation in Carnoy's fluid for 24 hours. Root tip cells were dissociated by 1N HCl for 8 minutes at 60°C, and slides were prepared by the standard acetocarmine squash method. Chromosomes were studied at diakinesis, photographs were taken by computer-

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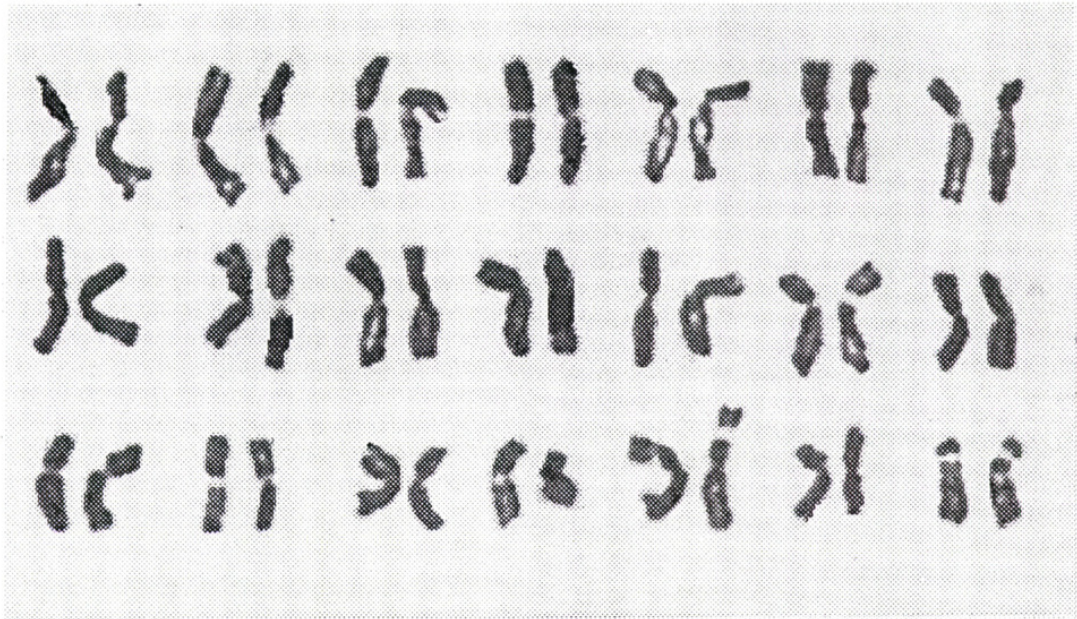
Figure 1. *Roegneria tridentata* Yen & J. L. Yang (holotype). —A. Plant. —B. Dorsal view of a floret showing 3-toothed apex of lemma and tip of longer palea. —C. Dorsal view of lemma. —D. Ventral view of floret. —E. Lodicule. —F. Dorsal view of caryopsis. —G. Ovary and stigma. —H. Stamen. —I. First glume. —J. Second glume. —K. Spikelet.



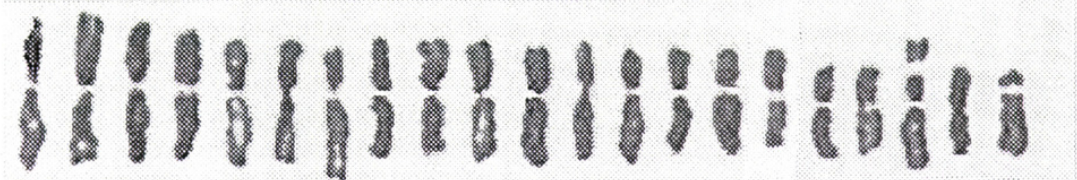
A



B



C



D

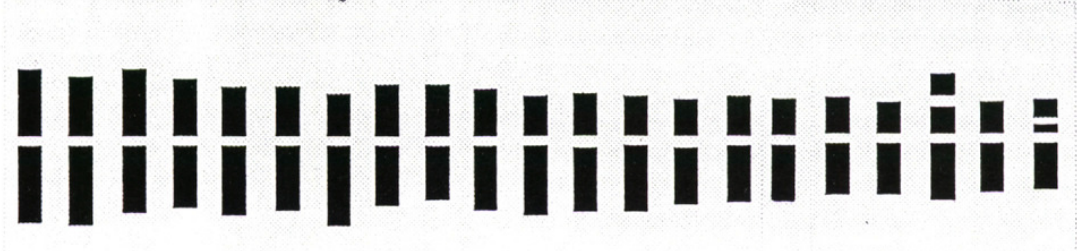


Figure 2. Karyotype of *Roegneria tridentata* Yen & J. L. Yang. —A. Karyotype of somatic cell. —B. Same, karyotype with chromosomes rearranged by a MacIntosh Quadra 700 computer. —C. Same, but chromosomes straightened by MacIntosh Quadra 700 computer. —D. Idiogram prepared from C.

controlled Olympus system PM-10AD, and chromosome length was measured by a MacIntosh Quadra 700 computer.

Roegneria tridentata is a hexaploid, $2n = 6x = 42$. Its karyotype includes two pairs of satellite chromosomes. On the basis of the comparative arm length of satellite chromosomes, the species belongs to the *Roegneria* type. Its genomic constitution is apparently different from that of *Elymus* and *Ken-
gyilia*. Detailed genome analysis is now in progress. The karyotype is similar to that of *R. tsukushiensis* (Honda) Ohwi, which was documented earlier (Lu et al., 1988). Chromosome 40 has a large satellite, and chromosome 42 has a very short arm connected with a small satellite. This is the typical karyotype of the Y genome. The other two genomes may be

the S and H observed in *R. tsukushiensis*, but further study is needed to elucidate that.

Paratype. CHINA. **Qinghai**: 152 km from Qilian to Yienuguo, Sunan County, 3,100 m, 31 Aug. 1992, J. L. Yang et al. 9202001 (Sichuan Agricultural University Triticeae Institute).

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