

Original article

EDN QRFTTT

DOI 10.24419/LHI.2304-3083.2023.3.06

## Microshoots Formation of Male Cloudberry (*Rubus chamaemorus* L.) Plants *in vitro* Culture

**Sergey S. Makarov<sup>1</sup>**

*Doctor of Agricultural Sciences*

**Sergey A. Rodin<sup>2</sup>**

*Doctor of Agricultural Sciences, Academician of the Russian Academy of Sciences*

**Anton I. Chudetsky<sup>3</sup>**

*Candidate of Agricultural Sciences*

**Alexander M. Antonov<sup>4</sup>**

*Candidate of Agricultural Sciences*

**Elena I. Kulikova<sup>5</sup>**

*Candidate of Agricultural Sciences*

**Irina B. Kuznetsova<sup>6</sup>**

*Candidate of Agricultural Sciences*

**Nikolay N. Zhuravlyov<sup>7</sup>**

**Abstract.** The results of studies on clonal micropropagation of male plants of cloudberry (*Rubus chamaemorus* L.) of 4 forms selected in natural growth places in the Arkhangelsk and Vologda regions, the Republic of Karelia and the Khanty-Mansi Autonomous Okrug – Yugra. The fruits of *R. chamaemorus* have high nutritional and medicinal value. The experience of cultivating *R. chamaemorus* on depleted peatlands shows the prospects for creating berry plantations in such areas. It is necessary to improve the technology of clonal micropropagation of *R. chamaemorus* for Northern Russian origin forms. The maximum number (average 4.3–5.8 pcs.) and total length (9.0–17.6 cm) of *R. chamaemorus* microshoots in *in vitro* culture at the stage of shoot proliferation are noted when using the full composition of the MS nutrient medium, while similar indicators on the MS 1/2 and MS 1/4 media are 1.2–1.8 and 1.3–2.6 times lower, respectively. An increase in the concentration of 6-BAP cytokinin from 1.0 to 2.0 mg/l in the nutrient medium contributed to an increase in the number of microshoots of male *R. chamaemorus* plants in *in vitro* culture by 1.4–2.0 times and a decrease in its average length by 1.0–2.0 times, while no statistically significant differences in the total length of microshoots depending on the 6-BAP concentration are found in most forms. The biometric indicators of the Khanty-Mansiysk form *in vitro* are higher compared to the Arkhangelsk, Vologda and Karelian forms.

**Key words:** cloudberry, clonal micropropagation, *in vitro*, nutrient medium, growth regulators.

**For citation:** Makarov S., Rodin S., Chudetsky A., Antonov A., Kulikova E., Kuznetsova I., Zhuravlyov N. Microshoots Formation of Male Cloudberry (*Rubus chamaemorus* L.) Plants *in vitro* Culture. – Text : electronic // Forestry information. 2023. № 3. P. 85–93. DOI 10.24419/LHI.2304-3083.2023.3.06. <https://elibrary.ru/qrfttt>

<sup>1</sup> Russian Timiryazev State Agrarian University, Head of Decorative Gardening and Lawn Science Chair (Moscow, Russian Federation); Northern (Arctic) Federal University named after M.V. Lomonosov, Professor of the Landscape Architecture and Artificial Forests Chair (Arkhangelsk, Russian Federation), makarov\_serg44@mail.ru

<sup>2</sup> Russian Research Institute of Silviculture and Mechanization of Forestry, Deputy Director for Research (Pushkino, Moscow Oblast, Russian Federation), info@vniilm.ru

<sup>3</sup> Russian Timiryazev State Agrarian University, Associate Professor of Decorative Gardening and Lawn Science Chair (Moscow, Russian Federation), a.chudetsky@mail.ru

<sup>4</sup> Northern (Arctic) Federal University named after M.V. Lomonosov, Head of the Landscape Architecture and Artificial Forests Chair, Associate Professor (Arkhangelsk, Russian Federation), a.antonov@narfu.ru

<sup>5</sup> Vologda State Dairy Academy named after N.V. Vereschagin, Head of Plant Growing, Agriculture and Agrochemistry Chair, Associate Professor (Molochnoe, Vologda, Russian Federation), elena-kulikova@list.ru

<sup>6</sup> Kostroma State Agricultural Academy, Associate Professor of Agrochemistry, Biology and Plant Protection Chair (Karavaevo, Kostroma district, Kostroma Oblast, Russian Federation), sonnereiser@yandex.ru

<sup>7</sup> Russian Timiryazev State Agrarian University, Laboratory Assistant of Decorative Gardening and Lawn Science Chair, Postgraduate Student (Moscow, Russian Federation), deksad@rgau-msha.ru