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**WHERE ARE THE LIMITS OF GENETIC VARIABILITY INTRA
SPECIES *PICEA ABIES* (L.) KARST. *PICEA ABIES*
VAR. *MISICII*, MAT. ET PAV.
- THE EXTREME AMONG CONIFERS -**

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ABSTRACT. A higher number of primary branches is in the whorl of branches in the older part of the stem, and in the younger part, the number branches in the whorl is smaller(2-3)

The majority of primary branches makes a mildly acute angle compared to the direction of stem growth, they are almost pleiotropic. There are branches which deviate significantly from the radial position. This refers specially to the branches that appeared subsequently, within or out of the whorl, and to the branches of the following orders of branching, which reach as far as the tertiary level. These are the characteristics that distinguish the mutant spruce from almost all members of the genus, family, and perhaps even wider.

INTRODUCTION

The species *Picea abies* (L.) karst. has the greatest morphological variability in the family *Pinaceae*, which results in the description of a higher number of intraspecific taxa (Jovanović 1974,1991; Vidaković 1982). Vidakovic (1982) cites, after Kr•ssmann (1972), more than a hundred cultivars and forms. In the characteristics of these forms there is not a single description which corresponds wholly to the morphological characteristics of the "mutant" spruce (Matović 1988; Matović *et al.* 1994.; Matović and Vujković 1994a, 1994b). The paper compares some morphological and quantitative characteristics of the "mutant" and the common spruce growing in the neighborhood.

MATERIAL AND METHODS

During the latest field investigations (22. Nov. 1994.) of the site mutant spruce at the locality Paljika, the mountain Kamena Gora near Prijepolje, additional data and material have been collected on the common spruce (*Picea abies*). In addition to the description of the habit, the data have been given on the measurements of the needle length and thickness, one year

increment, levels of branching and the number of needles per one centimeter of branch length. The unusual spruce was described as an unnamed "new mutant form" (Matović 1988, Matović *et al.* 1994). Based on these descriptions, this form has been ascribed the taxonomic level of the variety and it has been named *Picea abies* var. *misicii* - Mišić's spruce, in honor of the prominent researcher of the flora and vegetation in Serbia - Dr. Vojislav Mišić.

The state of the stand where *P. abies* var. *misicii* grows has been changed to the state observed by Matović when he discovered it in 1984, and compared to the first description (Matović 1988). The regeneration has been cut - it was most likely vegetative, as well as the adjacent common spruces. From the previous state of the stand, in the tree layer only several broadleaf species remained (*Populus tremula* L., *Acer pseudoplatanus* L., *Sorbus aucuparia* L., *Betula pendula* Roth.), one *P. abies* var. *misicii* and one common spruce (the spruces are approximately of the same age, height and base diameter).

RESULTS AND DISCUSSION

Mišić's spruce girth is 98 *cm* at the height of 40 *cm* above ground, and bole begins to fork at the height of 70 *cm*. Needles on the shoots of the same age, grown in 1992, 1993, 1994, are regularly longer (15.3 to 21.7 *mm*) than the adjacent common spruce needles (12.2 to 16.8 *mm*). Needle diameters from different parts of the tree in the adjacent common spruce range between 0.7 to 1.2 *mm*, and in Mišić's spruce from 1.1 to 2.0 *mm*. The number of needles (Fig. 2) recorded per one *cm* of shoot length is twice greater in the mutant spruce, from 48 to 76 needles (average 59) than in the adjacent common spruce, from 21 to 34 needles (average 29). The top of the crown is widely conical, and from the upper third, the contour of the crown edges curves gradually downwards (convex compared to tree line), do that the crown in the widest at the middle of the bole.

CONCLUSION

A higher number of primary branches is in the whorl of branches in the older part of the stem, and in the younger part, the number branches in the whorl is smaller (2-3). The majority of primary branches makes a mildly acute angle compared to the direction of stem growth, they are almost pleiotropic. There are branches which deviate significantly from the radial position. This refers specially to the branches that appeared subsequently, within or out of the whorl, and to the branches of the following orders of branching, which reach as far as the tertiary level. These are the characteristics that distinguish the mutant spruce from almost all members of the genus, family, and perhaps even wider.

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