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**Evaluation of uranium accumulation in black spruce trees**

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This study evaluated the metal accumulation capacity of black spruce seedlings (*Picea mariana*) with a special focus on uranium, and compared uptake from peat and podzol soil treated with various concentrations of uranyl nitrate hexahydrate. Bioavailable indices for uranium in the substrates, accumulation factors, and transfer factors for translocation of U between different plant organs were estimated. The results showed higher concentration of U in shoots, with accumulation factors up to seven times greater than values determined in roots. Uranium accumulation in stems was several orders of magnitude higher than the metal content in roots and needles. Transfer from substrate to the plants was influenced by substrate-specific properties, resulting in higher uptake of U from soil than from peat. The pattern of U accumulation was consistent with that previously reported in field studies. Metal accumulation values also showed linear progression with bioavailable metal concentrations in the substrate suggesting that black spruce trees are best classified as bioindicators of uranium content in underlying substrates, rather than hyperaccumulators of the metal.