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[\[PDF \(1234K\)\]](#) [\[References\]](#)**Differences in the Ratios of Cyanidin-3-*O*-glucoside and Cyanidin-3-*O*-rutinocide to Total Anthocyanin under UV and Non-UV Conditions in Tartary Buckwheat (*Fagopyrum tataricum* Garten)**[Kentaro Eguchi](#)<sup>1)</sup> and [Tetsuo Sato](#)<sup>1)</sup>

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**Abstract:** Anthocyanins play beneficial roles in plant growth and development such as the reduction of photo-oxidative damage to leaf cells. Tartary buckwheat contains two anthocyanins, namely, cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside, which are accumulated in the stems and leaves. In order to clarify which type of anthocyanin is accumulated at different nodal positions, we investigated the type of anthocyanin and their contents in buckwheat stems using HPLC. The anthocyanins detected were identified as cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside by comparison with the retention times and co-chromatography with the standard solutions. The contents of cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside at the proximal stem position were higher than those at the distal stem position. The ratio of each anthocyanin to total anthocyanin varied with the nodal positions. An outdoor study suggested that UV stress might influence the ratio of each anthocyanin to total anthocyanin. Consequently, we investigated these ratios in a growth chamber. The growth chamber study suggested that the ratio of cyanidin-3-*O*-rutinoside to total anthocyanin was higher under UV conditions than under non-UV conditions. These results indicate that cyanidin-3-*O*-glucoside accumulates in a small amount and that cyanidin-3-*O*-rutinoside accumulates in a large amount in young organs that suffer from strong UV stress. Cyanidin-3-*O*-rutinoside may have a UV-protective effect and tartary buckwheat may accumulate cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside systematically to afford effective protection against UV stress.

**Keywords:** [Anthocyanin](#), [Flavonoids](#), [Node](#)

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