A 2,4-D ANALOG EXHIBITS AN INHIBITION ON AUXINS INFLUX IN *ARABIDOPSIS THALIANA*

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The studies using inhibitors of plant hormone transport give us many insights of auxin physiology in plants. 1-Naphtoxyacetic acid (1-NOA), an analog of the synthetic auxin 1-N- naphtalene acetic acid (NAA), inhibits the IAA influx. However, 1-NOA also shows auxin activity because of its structural similarity to NAA. Here, we identified a 2,4- dichlorophenoxyacetic acid (2,4-D) analog, “7-B3; ethyl 2-[(2-chloro-4- nitrophenyl)thio]acetate”, can also inhibit IAA influx obtained from the screening using maize coleoptile. At more than 300 µM, 7-B3 slightly reduced IAA transport and gravitropic response of maize coleoptiles. We also detected the effects of 7-B3 on *Arabidopsis* seedlings. Although the effect of 7-B3 was weaker than that of 1-NOA, it rescued 2,4-D- inhibited root elongation as similar to non-treatment root, but not NAA-inhibited elongation. As for *DR5::GUS* expression, both 1-NOA and 7-B3 reduced its expression induced by IAA and 2,4-D, but did not that induced by NAA. Interestingly at high concentration, 1-NOA exhibited auxin activity, but 7-B3 did not. Furthermore, 7-B3 inhibited apical hook formation in etiolated seedlings more effectively than 1-NOA. Therefore, we concluded that 7-B3 could be an inhibitor of IAA influx almost without effect on IAA efflux or auxin activity.