IAA partially counters the effects of root formation inhibitors in leafy spurge

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In aseptic, isolated hypocotyl segments of the perennial weed leafy spurge (Euphorbia esula L.), root formation is inhibited, whereas shoot formation is stimulated by cool white fluorescent light. Exogenous IAA stimulates root formation in light or darkness. In most cases, shoot formation is inhibited by IAA, irrespective of the presence or absence of light. Canaline and canavanine, inhibitors of polyamine biosynthesis, inhibit root formation. The inhibition by canaline is partially overcome by IAA, but the results of canavanine treatment varied. Arcaine and pentamidine, two presumed competitors of polyamine interactions with N-methyl-D-aspartate in animals, also inhibit root formation in leafy spurge. These results support the hypothesis that IAA (or a major metabolite of IAA) is involved in a regulatory mechanism that controls root formation in leafy spurge hypocotyl segments, but is not the sole regulator of root formation.