E235 Autoregulation of Stem Nodules of *Sesbania rostrata*

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The number and size of stem nodules of *Sesbania rostrata* induced by *Azorhizobium caulinodans* ORS 571 were measured to study the control mechanism, so called autoregulation-the feedback suppression of nodulation and nodule growth by pre-existing nodules.
The stem was divided into two, upper and lower sections. At 0, 2, 4, 6, 8, 12 days after the first inoculation on the lower part of stem, the upper part of stem was inoculated. The nodulation on the upper part of stem was not suppressed by 2, 4, 6, 8, 12 days old nodules developing on the lower part of stem. However, that was significantly inhibited by 12 days old nodules. The growth of upper nodules was markedly suppressed by pre-existing and developing lower stem. The growth rates(mm/day) of both nodules developing on the upper and lower stem were change considerably around 10 days after inoculation.
It suggests that control mechanism exerts during even the late stage of nodule development.

E236 Ozone-Induced Biochemical Changes in Antioxidant Enzymes of Transgenic Tobacco Plants that Overexpress Sweet Potato Peroxidases

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To analyze the physiological role of an anionic peroxidase (POD)(swpa1) and neutral POD (swpn1) of sweet potato, we developed transgenic tobacco plants that overexpress two PODs and investigated their responses in antioxidant enzymes to ozone exposure. Ozone (200 ppb, 4 hr) markedly enhanced superoxide dismutase (SOD) and POD activity in the leaves of two transgenic plants (swpa1 and swpn1) compared to control plants, whereas it reduced catalase activity in transgenic plants. Particularly, swpa1-expressing plants had high SOD and POD activity in response to ozone, which are ca 1.8 times and 1.7 times higher than untreated plants. These results suggest that the oxidative damage derived by ozone exposure might be reduced by enhanced SOD and POD activities in POD overexpressing transgenic plants.