

EFFECT OF SEED PRIMING USING BIOREGULATORS ON SEED ANTIOXIDANT ACTIVITY AND SEEDLING GROWTH OF BELL PEPPER



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Objective

Verify the effect of seed priming using bioregulators on the antioxidant activity in seeds and initial seedling growth of bell pepper.

Materials and Methods

- **Seed:** Two cultivars (AF-6 and AF-7) each represented respectively by three and four seed lots.
- **Treatments:** Hydropriming, Priming by Stimulate® (10 ml/100 ml distilled water), 24-epibrassinolide (10^{-6} M; 10^{-8} M; 10^{-10} M) and GA_3 (100 μ M) during 24 hours at 25 °C, followed by seed drying at 32 °C and 30% relative humidity.
- **Tests:** Germination and vigor (germination first count, saturated salt accelerated aging, lipid peroxidation, seed vigor index and seedling length by the SVIS software).

Results

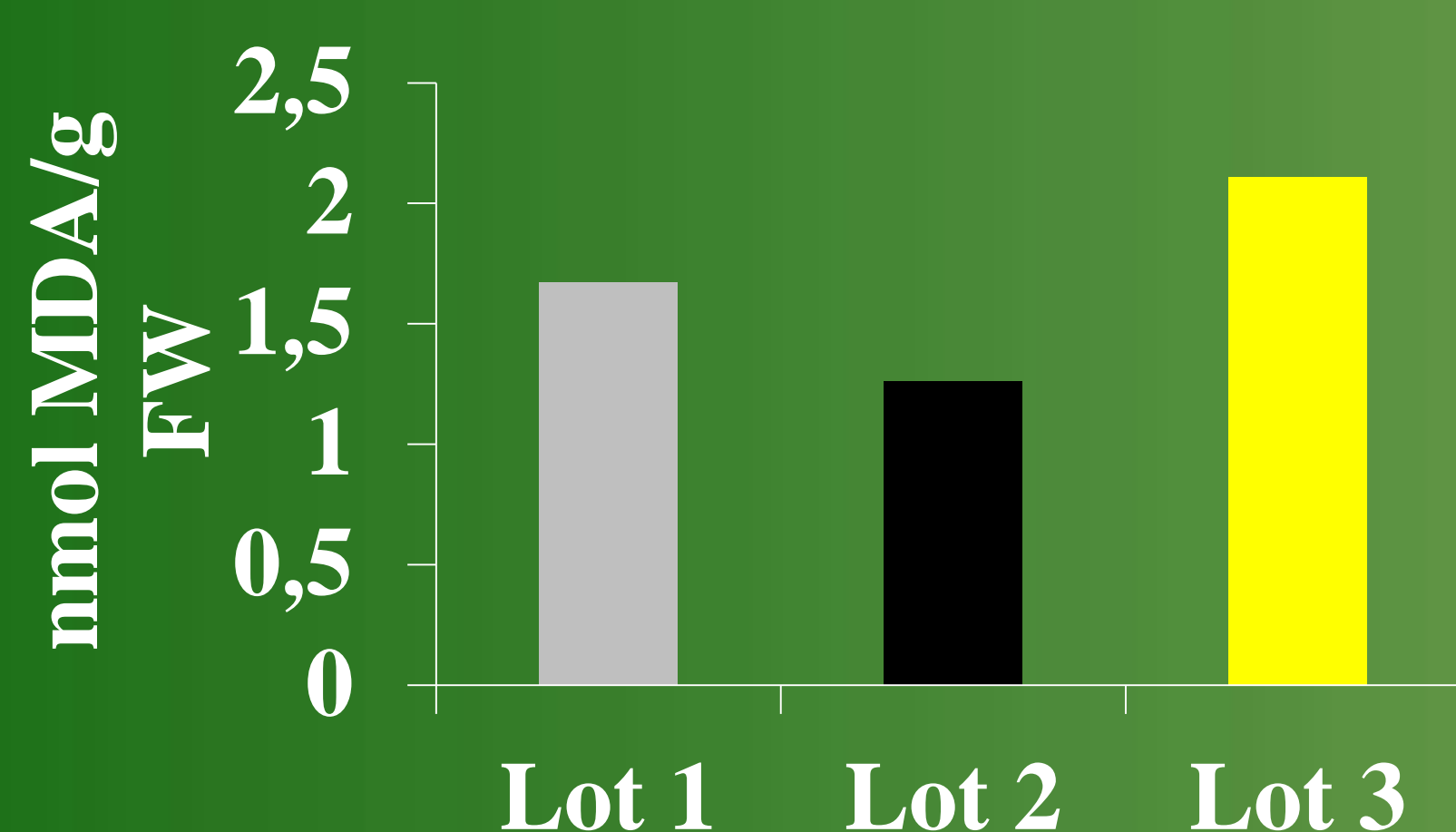


Figure 1. Initial physiological potential of three seed lots of bell pepper determined by lipid peroxidation level (concentration of malondialdehyde - MDA) (nmol/g fresh weight).

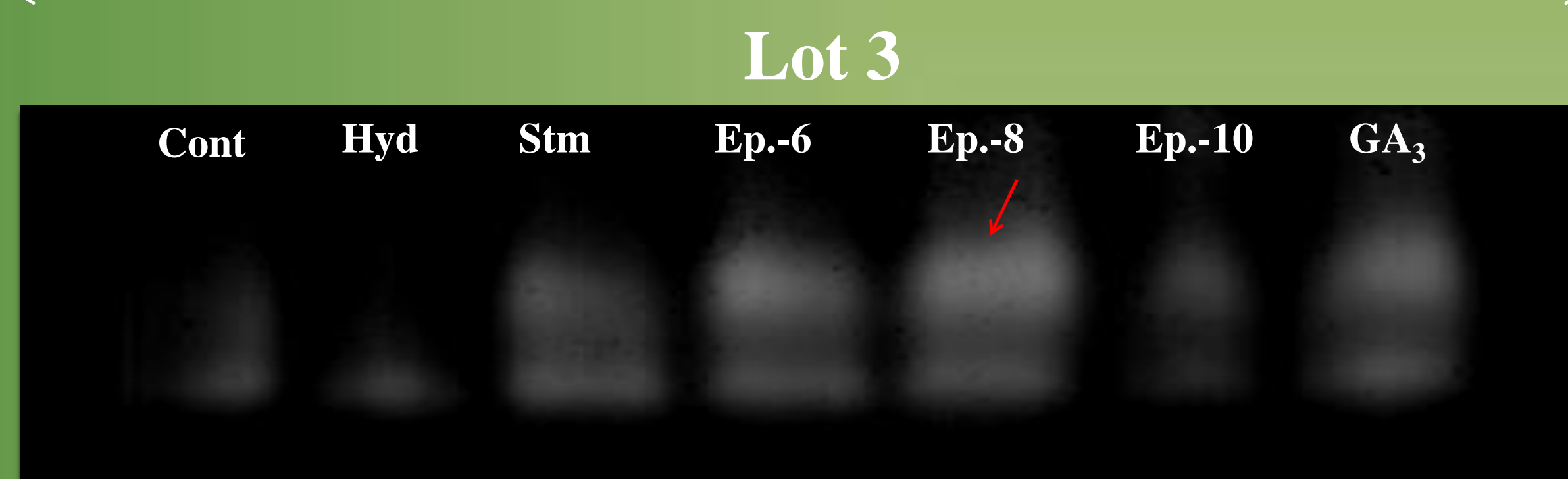


Figure 2. Enzymatic activity of Catalase (CAT) from bell pepper seeds, cultivar AF-6, examined by non-denaturing PAGE. Control (Cont); hydropriming (Hyd); priming by Stimulate® (Stm), priming by 24-epibrassinolide in concentrations of 10^{-6} M (Ep.-6), 10^{-8} M (Ep.-8) and 10^{-10} M; priming by GA_3 .

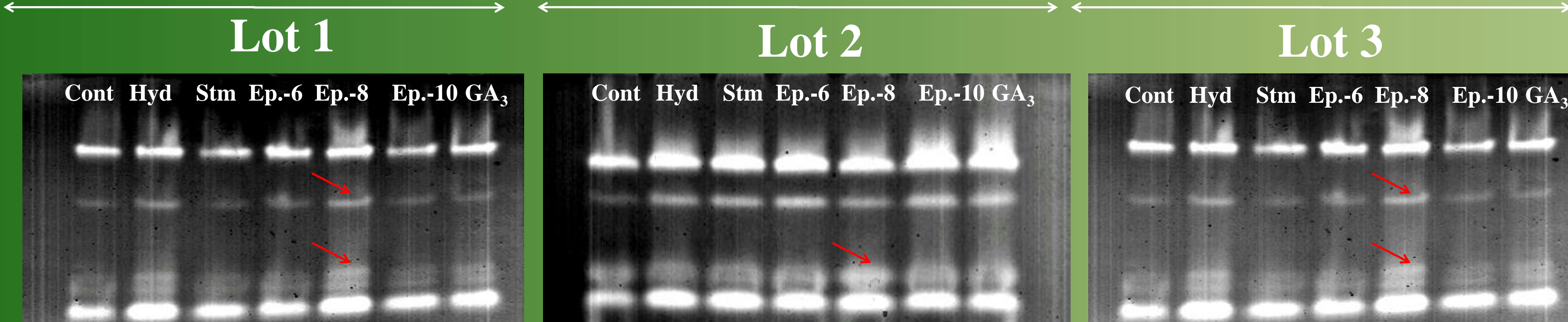


Figure 3. Enzymatic activity of Superoxide dismutase (SOD) from bell pepper seeds, cultivar AF-6, examined by non-denaturing PAGE. Control (Cont); hydropriming (Hyd); priming by Stimulate® (Stm), priming by 24-epibrassinolide in concentrations of 10^{-6} M (Ep.-6), 10^{-8} M (Ep.-8) and 10^{-10} M; priming by GA_3 .

Conclusions

The activity of SOD and CAT, responsible for the removal of toxic intermediate compounds, was favorably affected by seed priming with 10^{-8} M of 24-epibrassinolide in the different seed lots and cultivars studied. Seed priming using 24-epibrassinolide (10^{-8} M; 10^{-10} M) or GA_3 caused the elongation of bell pepper seedlings.