

Figure 1. Scheme of the oxidation processes of linolenic acid, the polyunsaturated fatty acid precursor of MDA in plants. MDA is one of the most reactive RES

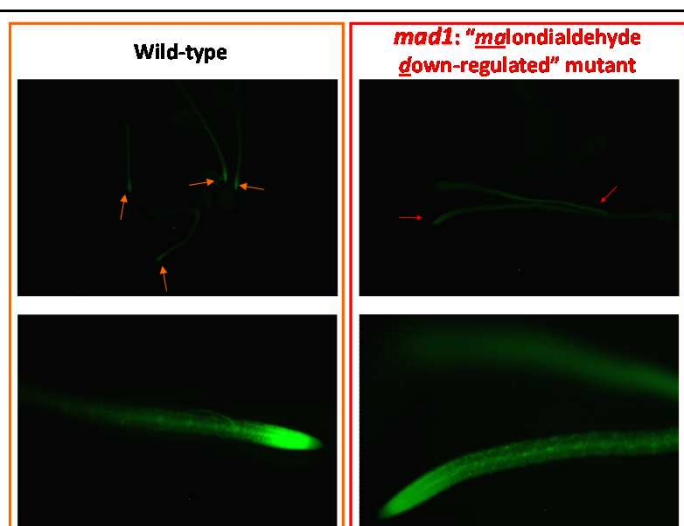


Figure 2. After incubation of 4-day-old Arabidopsis seedlings with 35 mM 2-thiobarbituric acid for 90 min at 25°C, it is possible to detect MDA. We found mutant (*mad1*) that contains less MDA in the root tip compared to wild-type plants.

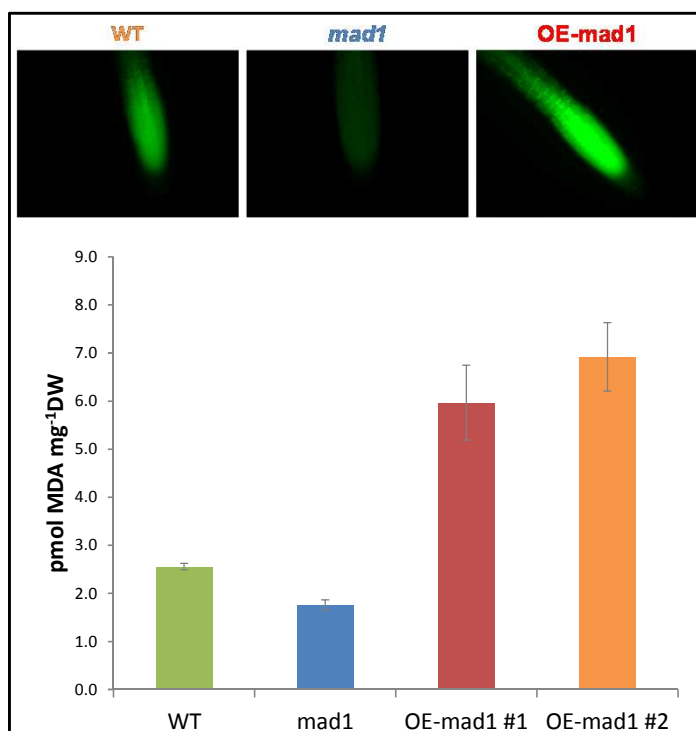


Figure 3. Transgenic plants overexpressing the *mad1* gene (here two independent lines, OE-*mad1* #1 and #2) contain much higher MDA levels than wild-type (WT) and *mad1* mutant plants. *Upper panel*: plants were incubated as described in **Figure 2** and MDA was visualized using an epifluorescence microscope. *Bottom panel*: the bars represent pmol of MDA per mg of root dry weight, as we obtained using gas chromatography / mass spectrometry techniques.

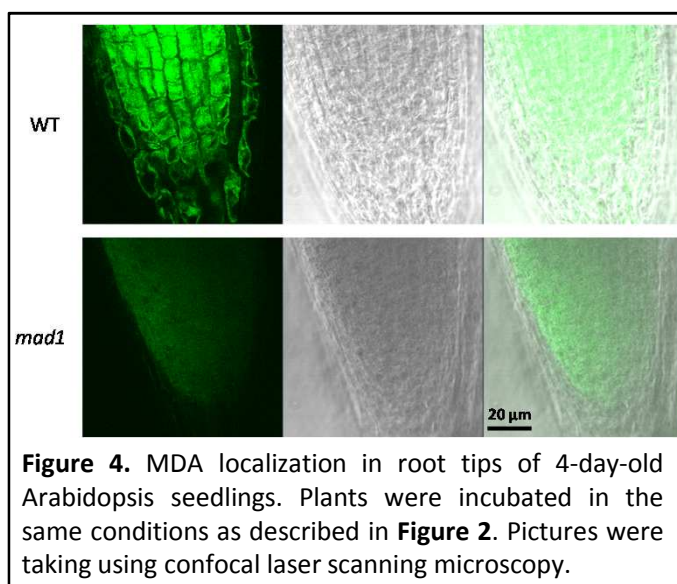


Figure 4. MDA localization in root tips of 4-day-old Arabidopsis seedlings. Plants were incubated in the same conditions as described in **Figure 2**. Pictures were taking using confocal laser scanning microscopy.

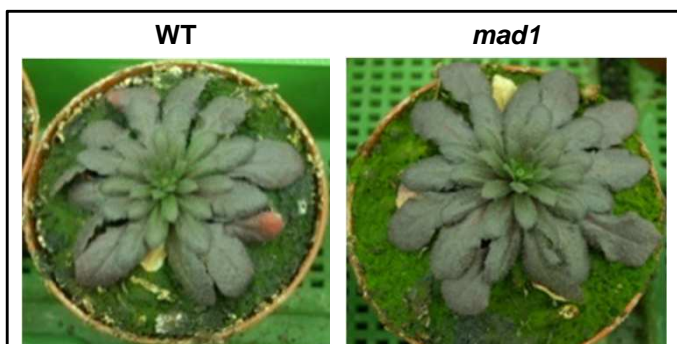


Figure 5. 56-day-old WT and *mad1* plants were grown for 28 days at high light and low temperatures conditions and their phenotypes were compared.