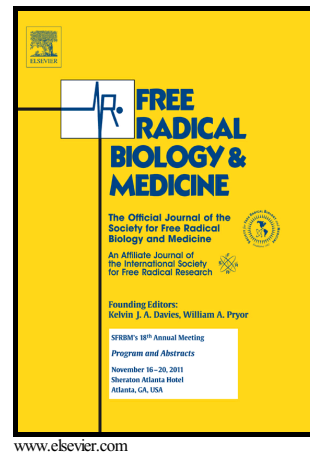


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Reactive oxygen species are crucial “pro-life
“survival signals in plants

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Reactive oxygen species are crucial “pro-life “survival signals in plants

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Plants have a mainly sessile life-style, which means that they must accommodate a fluctuating and often hazardous environment that frequently poses biotic and abiotic challenges. Plant survival and seed production requires enormous molecular plasticity that allows continuous tuning of underpinning genetic and epigenetic programming of metabolism, physiology and morphology. Photosynthesis is the major driver of all plant processes, introducing the energy from sunlight into the biosphere and releasing oxygen from water. The driving force for photosynthesis sunlight is an almost limitless supply, and hence metabolic plasticity and flexibility has been achieved at the expense of photosynthetic efficiency. This evolutionary path has dictated that plants have become masters of redox control and signalling allowing exploitation of a wide range of ecological niches and highly variable as well as extreme environments. Photosynthesis and photorespiration are responsible for the high flux generation of a wide range of reactive oxygen species including singlet oxygen, superoxide, hydrogen peroxide. Even under optimal conditions, about 70% of the hydrogen peroxide

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