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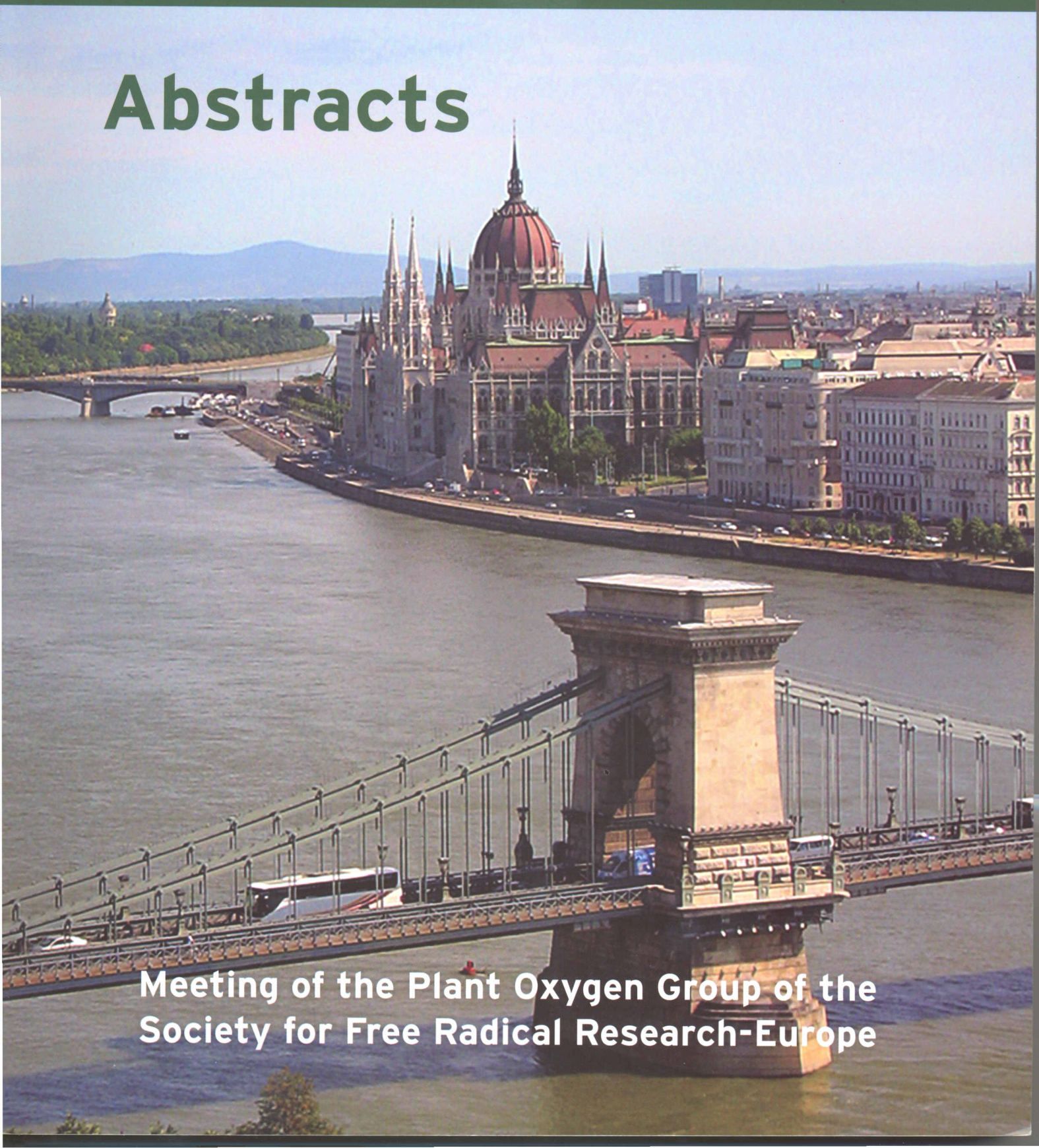

Abstracts

Meeting of the Plant Oxygen Group of the Society for Free Radical Research-Europe

P-149. A NOVEL INTERACTION BETWEEN NITRIC OXIDE AND OZONE CONTROLS KIWIFRUIT RIPENING

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Recent data suggest that nitric oxide (NO) acts as a senescence-delaying molecule by down-regulating ethylene emission in fruits. Kiwifruit (*Actinidia deliciosa*) is a climacteric fruit sensitive to ethylene and responds positively to post-harvest ozone application. In the present study, kiwifruit of cv. 'Hayward' were treated pre- and post-harvest with 100 μM SNP (a NO donor), then cold-stored (0 °C, R.H. 95%) for 4 months in the absence or presence of ozone (0.3 μL L^{-1}), and subsequently left to ripen for 15 d at room temperature (20 °C, shelf-life). Physiological data showed that the combination of NO and ozone treatments promotes the senescence of kiwifruits and shortens its postharvest shelf-life. Also, NO content and DAF-2DA fluorescence were modulated in kiwifruits by the treatments applied. Fruits that were pre- and post-harvest treated with SNP, followed by ozone exposure, displayed high levels of ethylene production. The expression of several transcription factors encoding EIN3-Like (EILs) and Ethylene Response Factors (ERFs) was modulated in fruits exposed to various shelf-life conditions. Using a proteomic approach, several S-nitrosylated and nitrated kiwi proteins were identified during shelf-life ripening, which are mainly involved in energy, protein metabolism, defence and cell structure. These data suggest that the interaction between NO and ozone stimulates kiwifruit ripening.