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Investigation by photothermal methods of the oils from evening primerose-seeds (*Oneothera biennis*) and rapeseeds (*Brassica napus*)

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We compare the photothermal properties of evening primerose-seeds oil with rapeseed oil. Both oils were investigated in the natural state in which some admixture of pheophytin (produced from chlorophyll) and carotenoids is present and in the bleached state. The yield of thermal deactivation of absorbed energy was obtained from steady state photoacoustic and absorption spectra. Steady state thermal deactivation in both natural oils was similar but in bleached oils was higher than in natural oils. The slow thermal deactivation of absorbed energy undergoing in microseconds time range was compared with quick deactivation using time-resolved photothermal spectroscopy. The slow component of thermal deactivation can be generated by the deactivation of triplet states as well as by the heat produced in photoreactions undergoing in investigated time range (from 0.4 micros till 5 micros). The evening primerose-seed oil exhibits more efficient slow thermal deactivation than the rapeseed oil what suggests that it is less photochemically stable than rapeseed oil. Bleaching causes the increase in the efficiency of both slow and total thermal deactivation in the oils what shows that the excitation energy is exchanged into heat rather in oil molecules than in pigment admixture.