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**Investigating the possible thermal-induced nonlinearities
in Linseed, Rose and Chamomile oils
using visible laser beam**

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Abstract:

Possible nonlinear optical characteristics in Linseed, Rose and Chamomile oils are investigated. Large thermal-induced third order nonlinear refractive index, $n_3 (10^{-5} - 10^{-6}) \text{ cm}^2/\text{W}$ has been obtained in rose and chamomile oils at 532 nm continuous wave (cw) laser radiation. Number of rings as well as the diameter of the outer most ring in each ring pattern is found to increased monotonically with increasing input power. Diffraction ring pattern resulted in Linseed oil by the simultaneous irradiation of the green and blue light beams at 532 nm and 473 nm respectively.

Keywords: Vegetable oils, diffraction ring pattern, nonlinear refractive index.