LIF EXCITATION SPECTROSCOPY OF 3-PENTOXY AND TERT-PENTOXY RADICALS

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The laser induced fluorescence (LIF) excitation spectra of 3-pentoxy and tert-pentoxy radicals are obtained for the first time. The experiments were carried out in the wavelength range 345-400nm by laser photolysis of corresponding pentyl nitrites at 355nm. For 3-pentoxy, 15 vibronic bands were labeled in three progressions with initial vibrational interval 578±6 cm\(^{-1}\) corresponding C-O stretch mode. Two other unknown mode progressions have vibrational intervals of 596±10 and 590±10 cm\(^{-1}\). The transition origin was tentatively assigned at 26437±5 cm\(^{-1}\). For tert-pentoxy, the LIF spectrum consists 12 vibronic bands in three progressions. The C-O stretching vibration frequency and transition origin are derived to be 551±10 and 25491±10 cm\(^{-1}\). The initial vibrational intervals of other two unknown modes are 587±10 and 631±10 cm\(^{-1}\). New observations from LIF experiments on 10 additional large alkoxy radicals in the range from 335 to 400 nm are reported.