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SYNERGISTIC EFFECT OF TWO INHIBITORS AND ONE ACTIVATOR IN A REACTION-DIFFUSION SYSTEM

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Abstract. We investigate a three-component reaction-diffusion system which describes the interaction of one activator and two inhibitors where one inhibitor acts as a travelling pulse generator of the activator, and the other does as lateral inhibition localizer. It is numberically shown that the synergistic effect of these two inhibitors on one activator generates several spatio-temporal patterns such as destabilization and non-annihilation of travelling pulses, and occurrence and splitting of travelling spots. By using singlar perturbation procedures, the stability of radially symmetric equlibrium solutions is discussed. Furthermore, we discuss how such dynamics are caused under the synergistic effect of two inhibitors.