

O6 STUDY OF THE EXTRACT FROM CURCUMA SPP. CONTAINING COBRA VENOM INHIBITING ACTIVITY

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ABSTRACT

Aqueous extract of *Curcuma* sp. (Wanphayangoo-tuamea), a plant believed as snakebite antidote as well as the aqueous extracts of other plants in this genus were tested for their effects on the binding between cobra venom and antivenom antibodies by using ELISA. Incubation of crude cobra venom with the extracts for 1 hr at room temperature demonstrated that the extracts of *Curcuma* sp. (Wanphayangoo-tuamea), *C. parviflora* Wall. (Khamin-khaow) and *C. domestica* Valetton [Khamin-tatua (short rhizome)] could decrease the binding of cobra venom to antivenom antibodies. The maximum effects of the extracts on the binding were approached at the dilution between 1:50 and 1:12.5. At dilution of 1:12.5, the extracts of *Curcuma* sp. (Wanphayangoo-tuamea), *C. parviflora* Wall. (Khamin-khaow) and *C. domestica* Valetton [Khamin-tatua (short rhizome)] could significantly reduce the binding between cobra venom and antivenom antibodies to 26.56 ± 3.97 , 47.27 ± 5.91 and 71.64 ± 5.18 %, respectively, when compared to the absence of the extracts. The extract of *Curcuma* sp. (Wanphayangoo-tuamea) could also decrease the binding between NTx and antivenom antibodies when tested on ELISA. Western immunoblotting showed the decrease in the intensity of 14, 20 and 21 kDa proteins in purified fraction of NTx. The extracts of *Curcuma* sp. (Wanphayangoo-tuamea), *C. parviflora* Wall. (Khamin-khaow) and *C. domestica* Valetton [Khamin-tatua (short rhizome)] were tested for the antagonistic effects against the inhibitory effect of cobra venom on isolated rat phrenic nerve-hemidiaphragm preparations. The cobra venom was incubated with the extracts at the ratio 1:5 (by volume) for 1 hr at 37° C before added to the organ bath. The complete inhibition time was prolonged when the venom was incubated with the extracts when compared to the extract alone. The increase in complete inhibition time caused by the extracts of *Curcuma* sp. (Wanphayangoo-tuamea), *C. parviflora* Wall. (Khamin-khaow) and *C. domestica* Valetton [Khamin-tatua (short rhizome)] were 242.15 ± 32.55 , 139.28 ± 18.88 and 32.29 ± 44.55 %, respectively. The potency of the 3 extracts tested by using isolated rat phrenic nerve-hemidiaphragm preparations was go along with the potency observed by ELISA technique. Without killing any experimental animals and time-saving in screening many samples, thus, the ELISA method may be a useful technique in screening snakebite antidote.