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STABILITY OF TETANUS TOXOID MICROCAPSULES

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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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เตตานิสทอกซอยด์ไมโครแคปซูลชนิดออกฤทธิ์นาน เตรียมโดยวิธีอินเตอร์เฟซียลเคโพอิชัน โดยมีเลขที่หนังสือจากไข่ม้วนเป็นส่วนหนึ่งของผนังเมมเบรนและคาร์บอกซีเมทิลโคติน ช่วยเพิ่มความคงตัวของยาเตรียม ไมโครแคปซูลที่เตรียมขึ้นถูกแยกและรวบรวมโดยใช้เทคนิคของแรงหมุนเหวี่ยงความเร็วสูงที่ 15000 รอบต่อนาที

ประสิทธิภาพความแรงของเตตานิสทอกซอยด์ (TT), เตตานิสทอกซอยด์ไมโครแคปซูล (TTM) และส่วนผสมของเตตานิสทอกซอยด์ กับเตตานิสทอกซอยด์ไมโครแคปซูล (TT+TTM) พบว่ายาเตรียม TT, TTM และ TT+TTM สามารถป้องกันหนูจาก เตตานิสทอกซิน ได้ระหว่างวันที่ 7 ถึง 15 วันที่ 15 ถึง 180 และวันที่ 7 ถึง 180 ตามลำดับ ยาเตรียม TT+TTM สามารถป้องกันหนูได้ตั้งแต่วันที่ 7 ถึง 180 ซึ่งให้ผลการป้องกันหนูได้ดีที่สุด เมื่อเทียบกับ TT

การเปรียบเทียบความแรงในการทดสอบความคงตัวของยาเตรียมเตตานิสทอกซอยด์ เมื่อเก็บยาเตรียมทุกชนิดที่ 4 องศาเซลเซียส เวลา 0, 3, 6 และ 9 เดือน พบว่ายาเตรียมทุกตัวมีความแรงเท่ากัน ดังนั้นยาเตรียมทุกตัวมีความคงตัวในช่วงเวลาที่ทดสอบ

การหาระดับภูมิคุ้มกันในหนูถีบจักร โดยวิธีอีไลซ่า (ELISA) พบว่า TT, TTM และ TT+TTM กระตุ้นหนูให้สร้างแอนติบอดีไโตเตอร์สูงเกินกว่า 50 ระหว่างวันที่ 7 ถึง 90, 15 และ 180 และวันที่ 7 ถึง 180 ตามลำดับ เมื่อแอนติบอดีไโตเตอร์เท่ากับ 1250 จะให้ผลในการป้องกันหนูจากเตตานิสทอกซินได้ 100%

การทดสอบความคงตัวของยาเตรียมเตตานิสทอกซอยด์ โดยตรวจหาระดับแอนติบอดีไโตเตอร์ในหนูถีบจักร พบว่ายาเตรียมทุกตัวมีความคงตัว และให้ระดับแอนติบอดีไโตเตอร์เท่ากัน ในช่วงระยะเวลาทดสอบ 9 เดือน

ภาควิชา เกษตรกรรม
สาขาวิชา เกษตรกรรม
ปีการศึกษา 2537

ลายมือชื่อนิติกร กฤษฎา เศรษฐปิยานนท์
ลายมือชื่ออาจารย์ที่ปรึกษา อ.อุบลทิพย์ นิมมานนิตย์
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Long acting tetanus toxoid microcapsules were prepared by interfacial deposition technique. Purified egg yolk lecithin and carboxymethylchitin were used as a polymeric membrane and a stabilizer respectively. Tetanus toxoid microcapsules were collected by centrifugation at 15000 rpm.

The potency of tetanus toxoid (TT), tetanus toxoid microcapsules (TTM) and the mixture of them (TT+TTM) showed that TT, TTM and TT+TTM could protect mice from challenging with tetanus toxin during day 7-90, day 15-180 and day 7-180 respectively. TT+TTM could protect mice from day 7 until 180. It gave the best protection when compared with TT.

To compare the potency in the stability testing for TT, TTM and TT+TTM stored at 4°C for 0, 3, 6 and 9 months. They showed the same potency. All of tetanus toxoid preparations were stable until 9 months.

The antibody titers of sera from mice immunized with tetanus toxoid preparation were determined by ELISA. The antibody titers were higher than 50 for TT, TTM and TT+TTM group during day 7-90, day 15-180 and day 7-180 respectively. The antibody titer of serum of 1250 gave 100% protection in mice from challenging with tetanus toxin.

Stability test of tetanus toxoid preparations were evaluated by the antibody titer of serum. All of tetanus toxoid preparations were stable and gave the same results of antibody titers until 9 months.

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LIST OF ABBREVIATIONS

| | | |
|-----------------|---|---|
| ANOVA | = | Analysis of variance |
| C | = | Degree celcius |
| cm ³ | = | Cubic centrimeter |
| ELISA | = | Enzyme - link immunosorbent assay |
| g | = | Gram |
| hr | = | hour |
| I.U. | = | International Unit |
| mg | = | Milligram |
| min | = | Minute |
| ml | = | Millilitre |
| mm | = | Millimetre |
| no. | = | Quantity |
| NS | = | Non significantly difference |
| rpm | = | Revolutions per minute |
| S | = | Significantly difference |
| TT | = | Tetanus toxoid |
| TTM | = | Tetanus toxoid microcapsules |
| TT+TTM | = | Tetanus toxoid + Tetanus toxoid microcapsules |
| μl | = | Microlitre |
| μm | = | Micrometre |
| x | = | mean |