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Optimizing Composition and Preparation of TMC-Coated Insulin Liposomes

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【ABSTRACT】 **AIM:** To study the effect of liposomal formulation factors on its efficiency as a carrier for oral administration of insulin. **METHOD:** liposomes were prepared by reversed-phase evaporation. *N*-trimethyl chitosan chloride (TMC) coating was carried out by mixing the liposomal suspension with the TMC solution, and followed by incubation. The hypoglycemic effect was taken for an experimental index. $L_{16}(2^{15})$ and $L_8(2^7)$ orthogonal experimental design was used to optimize composition and technique of TMC-coated insulin liposomes. **RESULT:** A liposomal system was found to be most effective. It consisted of insulin (100 IU), lecithin (200 mg), TMC (0.2 per cent *w/v*), PVP-K₃₀ (1% *w/v*), cholesterol (25 mg), Vit E (10 mg), water phase, and ABS (acetate buffer solutions), and was prepared by the reversed-phase evaporation. Its preparing conditions included ether (10 ml), rotary evaporating temperature (20 °C), TMC (added after probe sonication for 0.5 min), and incubate temperature (10 °C), incubate time (0.5 h). **CONCLUSION:** Variations in liposomal composition and preparation affect the efficiency of liposomes as a carrier for oral administration of insulin. The hypoglycemic effects of the TMC-coated insulin liposomes optimized were as follows: the minimum blood glucose levels were 64.75% and 17.17% of the initial blood glucose levels after oral given to rats and mice respectively.

【KEY WORDS】 Orthogonal design; Insulin; *N*-trimethyl chitosan chloride (TMC); Liposomes; Preparation; Optimization

【Foundation Item】 This project was supported by National Natural Science Foundation of China (No. 39930200).

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我校已完成国家教育部现代中药重点实验室申报工作

根据国家教育部通知, 决定近期在高等学校新建一批重点实验室, 我校对此高度重视, 经过几个月的准备和多次讨论协调, 整合了各院部相关学科的力量, 完成并已递交了“现代中药重点实验室建设申请报告”。

药学院心血管科学研究组举行第三届心血管科学研究基金颁奖大会

6月17日, 药学院心血管科学研究组举行了第三届心血管科学研究基金颁奖大会。4名博士研究生、4名硕士研究生、10名本科生分别获优秀论文奖; 4名硕士研究生获专业英语演讲优秀奖。

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