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KEY WORD: PROTEIN / EXPANSION / LEACHING / GLOVE

SUPACHAI JINDAWUTHIKUL : EFFECT OF GLOVE EXPANSION ON PRPTEIN
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The allergy to soluble protein in latex gloves has become a serious concern. Therefore, a study has been carried out on protein leaching from the latex gloves with a hypothesis that there exists a certain quantity of soluble protein adhered to the glove surface. Given long enough a period of time, the protein can be leached out completely. When the leaching conditions are modified, i.e. increase the temperature of leaching liquid, expansion of glove surface and the use of base solution, results in the increase of protein removal. Hence the experiment has been conducted by varying the temperature of leaching liquid at 30, 50 and 70° C ; expansion of glove surface at 30, 40 and 50 cycles/minute ; and leaching liquid being distilled water and a sodium hydroxide solution at pH 11.3. The quantity of protein leached out is determined by a modified Lowry method.

From the studies, it has been observed that the quantity of protein leached out increases with temperature, and more with a base solution than distilled water. The expansion of glove surface enhances the leaching. The leaching exhibits an exponential relationship with time as followed :

$$C(t) = C_T (1 - e^{-\beta t})$$

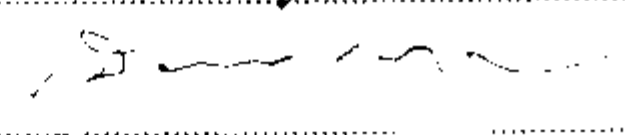
where $C(t)$ = protein leached out at a time (t), microgram
 C_T = total soluble protein adhered on the glove surface, microgram
 β = a constant
 t = the leaching time, minutes

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