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**ABSTRACT**

This study was to determine the seasonal effects on semen quality, protein profiles, and the level of HSP70 in HF bull semen at Lumpayaklang Al Bull Center Production. Semen of 10 bulls were collected 8 consecutive weeks during rainy (Aug.-Sep. 2005), winter (Nov.-Dec. 2005), and summer (Feb.-Apr. 2006). The ambient temperature and relative humidity were recorded and also expressed as THI.

The results showed that THI in the summer (80.10) and winter (79.34) were significantly higher than in the winter (75.27). Evaluation of semen quality found that the percentage of abnormal sperm in rainy (22.04) and winter (21.44) were significant higher than summer (7.02). The percentage of live sperm in winter (83.97) was significant higher than rainy (83.97) and summer (83.14). Moreover, temperature and humidity on the day of semen collection showed significant effect on sperm motility. However, temperature, humidity, and THI on 14 days before the day of semen collection (associated with the duration when sperm was in epididymis) and on 15-65 days before the day of semen collection (during spermatogenesis) revealed the significant effects on the incidence of secondary abnormal sperm and primary abnormal sperm, respectively.

One-dimensional SDS-PAGE analysis on protein profiles in sperm and seminal plasma displayed no different pattern between seasons. The molecular weight of protein profiles in sperm range between 8-220 kDa. It was found that the intensity of protein bands at molecular weight 8, 10, 28, 40, and 120 kDa were highest in summer, but the 70 kDa band was highest in winter. In seminal plasma, the molecular weight of protein profiles range between 8-202 kDa. However, most of proteins were the small molecular weight (<30 kDa).

The result of western blotting technique confirmed the presence of HSP70 in both sperm and seminal plasma, and the relative quantity of HSP70 was high in winter.
It is concluded from this study that there were seasonal effects on semen quality, particularly on the percentage of abnormal sperm. It is worth to note that temperature, relative humidity, and THI during the period of spermatogenesis and transportation in epididymis were related to the incidence of primary and secondary abnormal sperm. However, there was not seasonal effect on the protein profiles of sperm and seminal plasma. Nevertheless, the relative quantity of HSP70 was high in winter.