

Sureewan Punthanara 2009: Effects of Cassava Hay Supplementation in Dairy Cow Feed on Lactoperoxidase System and Raw Milk Quality. Doctor of Philosophy (Animal Science), Major Field: Animal Science, Department of Animal Science. Thesis Advisor: Associate Professor Pornsri Chairatanayuth, Ph.D. 150 pages.

Four experiments were conducted to study the effects of CH supplementation to dairy cow on lactoperoxidase system and raw milk quality. A 2x2 Factorial Experiment in CRD with repeated measurement was used in the 1<sup>st</sup> experiment to determine the productivity, chemical composition and HCN contents of two CH varieties (HB 60 and KU 50) planted at 2 sites (Nakhornratchasima and Prachuabkhirikhun province). Young cassava plants were harvested after 3 months planting, and then every 2 months for 4 consecutive harvesting times from each area. CH from Prachuabkhirikhun province was lower ( $P<0.05$ ) in CP contents while there was no different in HCN contents. In the 2<sup>nd</sup> experiment; the inhibitory effect of SCN levels on growth of microorganisms in raw milks were investigated. A RCBD with repeated measurement was assigned. The mean level of SCN in raw milk increased from 5.16 ppm in the control samples to 11.11, 15.48, and 19.89 ppm when conc. SCN solution was added at 5, 10 and 15 ppm, respectively. When compare to the control, SPC, Coliform and Psychrotroph counts in raw milk after adding SCN 10 and 15 ppm were lower ( $P<0.05$ ) at 25°C after 8 hr and at 4°C after 10 hr. Sixteen multiparous cows in early to mid lactation were used in a RCBD with repeated measurement to evaluate the effects of CH supplementation on raw milk quality in the 3<sup>rd</sup> experiment. Cows were blocked into 4 groups based on DIM and previous milk yield. During the 4 month trial, each group of cows was supplemented twice daily with concentrate only (T1) or concentrate+1 (T2), 2 (T3) or 3 (T3) kg CH/head/day. All cows received 6 kg concentrate and 25 kg ruzi grass silage per head daily. The concentrate for each treatment was formulated to provide together with CH and the silage 1,830-1,940 gm protein daily intake. Milk yield, milk composition and LP concentrations were not affected by treatments ( $P>0.05$ ). SCN concentrations were higher ( $P<0.05$ ) for T2, T3 and T4 than for T1. SCC, SPC, Coliform, Psychrotrophic and Thermophilic counts were lower in T2 to T4 as compared to T1. For the 4<sup>th</sup> trial, a 2x3 Factorial Experiment in RCBD was performed to study the effect of SCN levels (adding conc. SCN solution 0 and 15 ppm in raw milk samples) on the potential false positive of the antibiotic tests. Delvo test, AM-Test and test kit of DMS were used to detect 10 heat or non-heat treated raw milk samples from healthy and antibiotic free cows. Incidence of false positive results from antibiotic residue test appeared to increase when SCN was added at 15 ppm in non-heat treated milk. However, such false positive results from all test kid disappeared when the milk heat-treated at  $82 \pm 2^\circ\text{C}$  for 3 min.

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Thesis Advisor's signature

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