



## Chemical analysis of major constituents from Ban Dung rock salt

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Investigation of the major chemical constituents of rock salt produced from Ban Dung District, Udon Thani Province is performed in order to determine sodium, potassium, magnesium and calcium content of salt samples and to compare their values with the standards established for human health. Samples of boiled salt, dried salt and salt flat were analyzed. The mineralogical composition, moisture content, alkalinity and electrical conductivity of all samples were analyzed. The XRD pattern indicated that all samples compose of bassanite ( $\text{CaSO}_4 \cdot 0.5\text{H}_2\text{O}$ ), anhydrite ( $\text{CaSO}_4$ ) and halite ( $\text{NaCl}$ ). The moisture contents of boiled salt, dried salt and salt flat were  $0.19 \pm 0.03\%$  w/w,  $0.14 \pm 0.03\%$  w/w and  $0.08 \pm 0.01\%$  w/w, respectively. The alkalinity was  $0.039 \pm 0.002\%$  w/w,  $0.025 \pm 0.002\%$  w/w and  $0.024 \pm 0.002\%$  w/w while the electrical conductivity was  $19.48 \pm 0.24$  dS/m,  $17.48 \pm 0.23$  dS/m and  $18.59 \pm 0.14$  dS/m respectively. Mineral element analysis revealed that sodium, potassium, magnesium and calcium contained as the major elements. Total chloride sulphate contents on both of samples were analyzed using Argentometric method and UV-vis spectrometry, respectively. The results shown that the concentration achieved for sodium, potassium, magnesium and calcium were 28.66-37.79% w/w, 0.08-0.31% w/w, 0.05-0.22% w/w and 0.49-7.91% w/w, respectively. The total chloride was 49.54-58.48% w/w while the amount of sulphate was 0.60-5.89% w/w.

**Keywords:** Rock salt; Boiled salt; Dried salt; Salt flat