

A PIXE analysis of wood element concentrations of local trees surviving in  
severe saline soil  
– A case study in the northeastern Thailand –

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## Abstract

In the northeastern Thailand, a salt damage is actualized for several decades, and approximately 17% of total area are estimated at salt-affected soils. The main causes are regarded as deforestation and salt manufacture, but some farmers are in doubt about the relationship between the establishment of the irrigation system and saline soils. To solve this problem, it is demanded scientifically to identify the year of salt damage emergence. We showed possibility of the estimation of the year from the carbon stable isotopic ratio of the stems that remain in saline soil. In this study, we analyzed the element concentrations of wood by PIXE method to investigate whether we can estimate the salt damage emergence year by the chronosequence analysis of element concentration. The wood cores of stem were sampled by using a increment borer from *Acacia tomentosa* which remain in severely saline soil in Khonkean province, the northeastern Thailand. Core samples were separated to two parts, before and after the salt damage emergence year. The elements of these wood samples were analyzed by PIXE method in MNCC. In 6 elements, Ca, Mg, Na, P, Sr, and Zn, there were differences of element concentrations between before and after the salt damage emergence year. After salt damage emergence, concentrations of Na, P, and Zn increased, but these of Ca, Mg, and Sr decreased.