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SAKUNYUT SARUTANON : CORRELATIVE STUDY OF CHEMICAL AND PHYSICAL CHARACTERISTICS OF SOIL AND THEIR INFLUENCE ON *PINUS KESIYA* TREE-RINGS : CASE STUDY OF PHU KRADUNG AND NAM NAO NATIONAL PARKS, THAILAND.
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This study took 16 trees of *Pinus kesiya* collected from Phu Kradung National Park and Nam Nao National Park to measure tree-ring width and then analyze with soil samples that were collected from the same areas of wood samples. Soil characteristics, both chemical and physical, were the independent variables and tree ring-width was the dependent variable to find the most proper soil characteristics for the growth of *Pinus kesiya* in the studied area.

Results of the study showed that good factors for soil drainage were slope and sand particle in subsoil which remarked their positive correlation with that first 40-year growth period of *Pinus kesiya* for 51% and 45% respectively. Meanwhile, the clay particle of topsoil also remarked its negative correlation with the second and third 40-year growth periods for 54% and 50% respectively and the clay particle of subsoil remarked all negative correlation with three continuous of growth periods at 51%, 48% and 62% respectively.

For the soil nutrients, the organic matters and major nutrients in topsoil showed their influences on tree-ring width more than in subsoil as the organic matter in topsoil remarked positive correlation with whole four 40-year growth periods at 63%, 71%, 84% and 53% respectively. The total nitrogen in topsoil also remarked the same positive correlation with whole four growth periods at 58%, 77%, 84% and 54% respectively. Moreover, available phosphorus and extractable potassium in topsoil also remarked their positive correlation with the second and third growth periods.

Furthermore, the results also showed the acid soil preference of *Pinus kesiya* as pH in soil showed the negative correlation in three growth periods at 49%, 50% and 58%. The cation exchange in subsoil showed its negative correlation with tree-ring width only in the second and third growth periods.