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# Clay Mineralogy of Some Silty Soils of the Inner Coastal Plains of Mississippi

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**Abstract:** The chemical and mineralogical properties of six soils previously believed to be developed from coastal plain sediments were found to be significantly influenced by thin loess overlays and admixtures. The study included two profiles each of the Atwood, Lucedale and Savannah series. Atwood formed primarily in deep loess over coastal plain sediments, Lucedale showed definite loess influence to a depth of 10 in. and possible mixing to a greater depth, whereas the Savannah indicated the presence of slight loess to a depth of 20 in. Both the Atwood and Lucedale soils are well drained, whereas Savannah is moderately well drained and contains a fragipan.

The mineralogy of the coarse clay (2-0- 2  $\mu\text{m}$ ) appeared to be the most diagnostic feature indicating genetic differences among the soils. Montmorillonite in this clay fraction was most abundant in Atwood, diminished in Lucedale and occurred only in trace amounts in Savannah. In both the Atwood and Lucedale soils very little montmorillonite was found at depths of 35 in. where coastal plain influence apparently predominates. Conversely, aluminous vermiculite-chlorite intergrade minerals were least abundant, in Atwood, increased in Lucedale and occurred in greatest amounts in Savannah.

Accompanying these changes in mineralogy were corresponding changes in the chemical properties. Although no consistent differences in Ca and Mg content were found between the Atwood and Lucedale soils, both Atwood and Lucedale were much higher in exchangeable Ca and Mg than Savannah. Soil pH and base saturation increased in the order Savannah, Lucedale and Atwood.

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