

## 175 - SORPTION AND LEACHING POTENTIAL OF ACIDIC HERBICIDES IN BRAZILIAN SOILS

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Leaching potentials of three acidic herbicides were assessed for three different Brazilian soils, by means of the multi-layered AFi model. Values of AFi were also calculated for each herbicide using a modified model (AFi\*), where sorption coefficient (Kd) values are pH-dependent. The pH-dependent Kd values estimated for all three herbicides were always higher than pH-independent Kd values calculated using average Koc data. The pH-dependent Kd values for the three herbicides evidenced a large variation from layer to layer following changes in OC and pH for the different soil depths. When OC decreases, Kd tends to decrease; on the other hand, lowering pH tends to increase Kd. For all three soils, OC and pH exhibit an overall decrease with depth. Despite differences between the pH-independent Kd and the pH-dependent Kd values, the AFi values for 2,4-D, calculated by the original multi-layered-soil model and by the modified model (AFi\*), were similarly low for all three soils, mostly due to the short half-life of 2,4-D. The pH-dependent AFi values for flumetsulam were always much lower than values calculated by the original multi-layered model. Therefore, the pH-independent model appears to overestimate leaching potential of flumetsulam. The AFi values for sulfentrazone calculated by the original and the modified models were similarly high for all three soils, despite the differences in Kd values. The long half-life of sulfentrazone mostly contributed to the similar high values of AFi for the three different soils. Overall AFi values showed large differences for sulfentrazone when calculated by the original and by the modified model (AFi\*), owing to its high AF value for each layer. Thus, the original AFi model would seem to markedly overestimate the leaching potential for sulfentrazone, as well as for flumetsulam for these soil conditions.