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**AMES ACTIVITY, TOBACCO AND CONDENSATE  
CHEMISTRY OF 37 SINGLE GRADE TOBACCOS**

**REPORT NO: RD.2130**

**11 November 1988**

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**SUMMARY:**

The Ames specific mutagenic activity of cigarette smoke condensates (CSC) from 15 flue-cured, 10 Burley, 6 Oriental and 6 high nicotine single grade tobacco cigarettes has been measured. For each tobacco type, the relationship between plant position, geographical origin and Ames activity was examined. The correlations between tobacco chemistry, smoke chemistry and Ames activity have also been investigated.

For the flue-cured and Burley tobaccos, there was a trend towards decreasing Ames activity for lower plant position grades. Grades of equal smoking merit from different geographical locations also produced CSC with different Ames activities. Therefore, the potential to substitute tobacco grades in a cigarette to produce lower Ames activity CSC does exist, although other aspects of such grade substitution have not been addressed.

In correlations of Ames activity with tobacco and smoke chemistry the best guide to the relative Ames specific activity was found to be tobacco total nitrogen, protein nitrogen or condensate total nitrogen.

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**INDEX TERMS:**

Mutagenicity  
Ames test  
Tobacco Grades  
Experimental cigarettes  
Flue-cured tobacco  
Burley tobacco  
Oriental tobacco  
Nicotine  
Tobacco chemical properties  
Smoke chemical properties  
Nitrogen  
Nitrogen heterocyclic aromatic compounds

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