



## Animation scientifique du CSRS N° 7-2009

Jeudi 15 octobre 2009 (Salle Norbert Behi, CSRS, Km17 Adiopodoumé) à 15H00

**Title: Source-sink relationship in *Dioscorea alata* L**

**Hgaza<sup>abe</sup>, V.K., L.N. Diby<sup>bd</sup>, T.B. Tié<sup>d</sup>, A. Tschannen<sup>b</sup>, S. Aké<sup>a</sup>, A. Assa<sup>c</sup>, and E. Frossard<sup>e,\*</sup>**

<sup>a</sup> Laboratory of plant physiology, UFR-Biosciences, University of Cocody-Abidjan, Côte d'Ivoire.

<sup>b</sup> Swiss Center for Scientific Research, Abidjan, Côte d'Ivoire.

<sup>c</sup> Deceased, Department of Earth Sciences, University of Cocody- Abidjan, Côte d'Ivoire.

<sup>d</sup> Department of Water, Forest and Environment, National Institute of Technology FHB, Yamoussoukro, Côte d'Ivoire.

<sup>e</sup> ETH Zurich, Institute of Plant Sciences, Switzerland.

### Abstract:

This study was undertaken to assess source-sink relationship in yam (*Dioscorea spp.*). Two experiments were conducted with *D. alata* cv. TDa 95/00010 with and without fertilizer application in central Côte d'Ivoire in 2006 and 2007. The first experiment was designed to assess the effect of leaves removal after tuber initiation on plant development, whilst the second experiment aimed to study the effect of hindering tuber growth on plant development. Dry matter partitioned between plant organs; leaf area index, mean leaf area, leaf conductance and the specific leaf weight were determined. While removing leaves under non-fertilization had no effect on the leaf area index, leaf and tuber dry matter; it caused a significant decrease in these parameters under fertilization. However, in both cases, removing leaves induced the production of large and thinner leaves which had high leaf conductance. Hindrance in the tuber growth caused a significant decrease in leaf conductance suggesting that the leaf conductance is primarily determined by the tuber demand. Furthermore, Hindrance in the tuber growth caused a significant decrease in leaf and vine DM production indicating that the aerial DM production is control by the tuber development. These results suggest that after tuber initiation, the fixation of carbon by the aerial organ and its partitioning is controlled by the demand of the tuber.

**Key words:** Carbon fixation, *D. alata*, leaf conductance, removing leaves, removing tuber, partitioning, source-sink, tuber demand

