

Jean Kuate<sup>(a)</sup>, Kenick Keumougne Kamgain<sup>(abc)</sup>, Alain Tsobeng<sup>(c)</sup>, Joseph Djeugap Fovo<sup>(b)</sup>, Julienne Ngo Tang<sup>(a)</sup>, Ignazio Graziosi<sup>(d)</sup>, Alice Muchugi<sup>(d)</sup>, Simon Kang'ethe<sup>(c)</sup>, Ramni Jamnadass<sup>(c)</sup>.

(a) Institute of Agricultural Research for Development (IRAD), Yaounde, Cameroon - (abc) Internship IRAD-ICRAF/University of Dschang, Cameroon - (b) Phytopathology and Agricultural Zoology Research Unit, Plant Protection Department, Faculty of Agronomy and Agricultural Sciences, University of Dschang, Cameroon - (c) World Agroforestry, Yaounde Cameroon - (d) World Agroforestry, Nairobi, Kenya.

## Introduction

*Dacryodes edulis* (G. Don.) H. J. Lam known as African pear tree is a local fruit tree from central Africa cultivated in home gardens and in other tree crops-based systems. Its fruits have high nutritional value and thus important in human diet and are of high contribution for social and economic development in the central African sub region. In his tree genetic resources conservation program, the World Agroforestry Centre (ICRAF), set-up in Mbalmayo (Cameroon) a genebank where *D. edulis* trees are unfortunately attacked by pests and diseases that have to be characterized and controlled. In this purpose a survey conducted in 2018 showed anthracnose (98,4%) and dieback (5,85%) to be the major diseases observed on *D. edulis*. A rate of 24% dead trees that could be due to these diseases was also recorded. Field observations focusing on some 20 accessions from Democratic Republic of Congo (DRC) were done in 2020 to assess disease incidence and severity index from February to July.

## Methodology

- **Area of study:** the study was conducted in the ICRAF gene banks of *Dacryodes edulis* in Mbalmayo (03°28" N and 011°29" E) located in the bimodal humid forest zone.

- **Identification and characterization:** Successful inoculation tests were done with *Lasiodiplodia sp* on non-scarified and on scarified leaf discs (Akaza *et al.*, 2009).

- **Assessment of disease severity and incidence on DRC accessions:** Incidence was calculated as the percentage of infected plants in each accession. A severity index was obtained using a grading scale from Parisi *et al.* (1993) by the formula:  $s = \frac{\sum nv}{ZN} \times 100$ .

## Results

### Diseases symptoms and pathogens on *D. edulis* organs



**Figure 1:** (A) anthracnose leaf spot; (B) anthracnose gullyng spot on fruit; (C) spores of *Colletotrichum sp*; (D) dieback symptoms on a shoot; (E) fruit decay of *Lasiodiplodia sp* and (F) conidia of *Lasiodiplodia sp*

### Leaf disc inoculation with *Lasiodiplodia.sp*

**Table 1: lesion area on non-scarified leaf discs**

Inoculum	Accessions (Var)				
	Mbyo10	Mbyo3	Mbyo5	RDC3	RDC11
<i>Lasiodiplodia sp</i>	0±0 <sup>c</sup>	0,2±0,3 <sup>c</sup>	5±2,3 <sup>a</sup>	1,2±1,4 <sup>b</sup>	4,9±2,1 <sup>a</sup>
PDA	0±0 <sup>c</sup>	0±0 <sup>c</sup>	0±0 <sup>c</sup>	0±0 <sup>c</sup>	0±0 <sup>c</sup>

**Table 2: lesion area on scarified leaf discs**

Inoculum	Accessions (Var)				
	Mbyo10	Mbyo3	Mbyo5	RDC3	RDC11
<i>Lasiodiplodia sp</i>	1,7±1,1 <sup>c</sup>	3,7±1,9 <sup>b</sup>	5,3±2,9 <sup>a</sup>	4,7±2,4 <sup>ab</sup>	1,9±1,7 <sup>c</sup>
PDA	0 ± 0 <sup>d</sup>	0 ± 0 <sup>d</sup>	0 ± 0 <sup>d</sup>	0 ± 0 <sup>d</sup>	0±0 <sup>d</sup>

**Table 3: Incidence and severity of Anthracnose in DRC accession in 2020**

Accessions	Mean Incidence (%)	Mean Severity index
DRC1	100 ± 0,0	2,6 ± 0,9
DRC2	80 ± 27,4	2,4 ± 1,8
DRC3	88 ± 11	6,6 ± 4,2
DRC4	86,6 ± 9,3	5,1 ± 2,9
DRC5	59,94 ± 14,9	<b>0,6 ± 0,1</b>
DRC6	100 ± 0,0	7,2 ± 4,7
DRC7	86,6 ± 29,8	6,1 ± 4,1
DRC8	100 ± 0,0	4,8 ± 1,8
DRC9	93,3 ± 14,9	2,3 ± 1,8
DRC10	86,6 ± 18,3	2,5 ± 1,6
DRC11	95 ± 6,8	4,4 ± 2,3
DRC12	88,6 ± 6,4	6,7 ± 3,4
DRC13	95 ± 11,2	5,1 ± 3,1
DRC14	100 ± 0,0	6,5 ± 4,0
DRC15	95,5 ± 6,1	6,4 ± 3,1
DRC16	97,1 ± 6,4	5,3 ± 1,9
DRC17	93,3 ± 14,9	<b>11,7 ± 4,1</b>
DRC18	82,5 ± 6,8	1,9 ± 0,9
DRC19	100 ± 0,0	<b>1,0 ± 0,0</b>
DRC20	100 ± 0,0	3,9 ± 2,9

## Conclusion and prospects

Anthracnose and dieback are known to be highly damageable on many tropical crops including *D. edulis*. But there is a paucity of knowledge on control methods for these diseases on *D. edulis*. The survey of disease attacks in a young collection 20 DRC accessions from February to June 2020 revealed that all plants were infected by anthracnose (100% incidence and a mean severity index ranging from 0,6 to 11,7). Further research works are needed to design an integrated pests and disease management strategy for the protection of genebank resources and a sustainable *D. edulis* production.

## References

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