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RESEARCH ARTICLE OPEN ACCESS

GERMINATION TEST OF SABA SENEGALENSIS (A. DC.) PICHON ON A FERRALSOL IN SOUTHERN CÔTE D'IVOIRE

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ABSTRACT

Commonly *calledcôcôta* in Côte d'Ivoire, *S. senegalensis*isa plant of the Africansavannas. It is highly appreciated by African populations for its taste and itsmanyvirtues. It iswidelyused in traditional medicine for the treatment of diseases such as leprosy, blindness, tuberculosis, dysentery and many others. However, itstillremains in the wild. For its domestication, itisvery important to determine the optimal seed on its growth. The studyconsisted to carry out a germination test withview to planting crop of *S. senegalensis*, on a ferralsol in Abidjan (Côte d'Ivoire). The device used is a randomizedcomplete block test containing plants from fresh and dry seeds thrown on the fly on a germinatorthentransplantedinto sachet containers containing ferrasol from the Floristic Center National (CNF). The duration and rate of germination weredetermined on the germinatedseeds. Observations were made 30 days. Resultsobtainedshowedthat for the culture of *S. senegalensis*, the immediatelysownfreshseeds have a high germination rate (80%) thanthosestored at room temperature and thosedried.

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INTRODUCTION

Saba Senegalensis is a species of wild liana in the Apocynaceae family (Leeuwenberg et van Dilst, 1989) that grows in Africans avannahs and is cultivated as a shrub (Leeuwenberg et van Dilst, 1989). In West Africa, the fruit isharvestedduring the rainyseason. It isverycommon in northern Côte d'Ivoire (Kouakou *et al.,* 2021). It is found in gallery and thicketforests in the Sudanian region(Burkill, 1985) and in savannahs in general (Ba et *al*., 1997). Fruits are large, bumpy, ovoid berries, 7 to 10 cm long, 6 to 8 cm wide, with a pleasantly acidic, edible pulp (Figure 1), (Berhaut, 1971).Chemical and biochemical composition of *Saba senegalensis* consists of a variety of antioxidant, anti-inflammatory and analgesic compounds(Boamponsem*et al*., 2013;Belemlilga*et al.,* 2019;Diatta, 2019; Tiendrebeogo*et al.*, 2020). The fruits of *S.senegalensis* are consumed, seasoned with salt, sugar or chili pepperand processed into four products (Diabagate, et *al.*, 2019). The fruits of *S.senegalensis* are consumed, seasoned with salt, sugar or chili pepper and processedinto four products (Diabagate *et al.,* 2019).

Figure 1: *Saba senegalensis* fruit

MATERIAL AND METHOD

Study site is the National de Floristic Center (CNF), locatedwithin the Université Félix Houphouët-Boigny d'Abidjan. It is between

longitudes 5° 20' 9" and 5° 20' 8" North and latitudes 3° 59' 1" and 3° 59' 0" West (Figure 2).

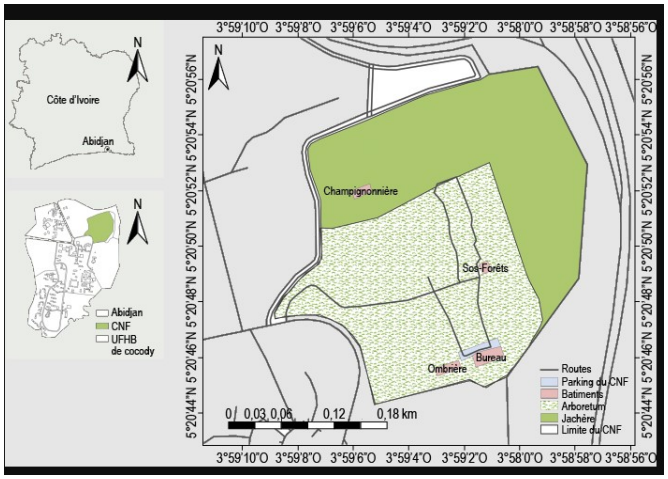

Figure 2. Study site (source N'goran *et al.*, 2022)

Soil at our study site are Ferral sols according to the FAO 2006 classification. Analysis of the profiles shows that profiles 1 and 2 have a sandy texture (0-10 cm) and a sandy-clay texture in the remaining horizons. At the bottom of the slope, on the other hand, the soil is sandy-clayey from surface to depth.Soil has lumpy structure, with an abundance of roots in all horizons. The absence of coarse elements is noted in all three soil profiles. From the upper slope to mid-slope, the soil described is Humic Dystric Arenic Ferralsol, and on the lower slope a Dystric Arenic Ferralsol. The soil at our study site is highly acidic but with low reserveacidity, as the Phwater values are all below pH 5 and the differencebetweenpHwater and pHKCl (ΔpH) values, regardless of topographic position and samplingdepth, does not exceed 0.5 pH units [14] (Table I).

Table 1. Soil chemical composition

	Chimic Elements	values
Unité de pH	pHwater	6,2
	pHKCl	5,3
g/kg	P	0,90
	C	14,70
	N	1,30
	MO	25,28
	C/N	11,31
mg/kg	K+	0,06
	Ca2+	1,34
	Mg2+	0,40
	Na+	0,06
%	CEC	6,56
	S/T	28,31

The plant material consisted of dry and fresh *Saba Senegalensis* seeds taken from a local market, which were sown in trays (Figures 3).

Figure 3a. Bio activator

Figure 3b : alveolus

Two types of tests were carried out. Seeds were sown in trays in the evening (5pm) and repeated three (3) times.

Figure 4. Fresh and dried seeds

The second test was carried out as follows:

- 70 fresh seeds soaked in the germination activator solution (GFTA), 12 hours before sowing in the tray and
- 70 fresh seeds sown directly in a tray (GF).

The parameters observed were germination time (day taken to germinate) and germination rate.

RESULTS

The results show a significant difference between treatments. Germination started from day 17 to day 30. In the 1st test, germination occurred on day 24, and up to day 30, therewas a 2% germination rate for freshseeds (GF1). Dry seedsdid not germinate. Up to day 30, the germination rate was 2.0%. For the second trial, the

first germinations appeared on day 17 with a rate of 7.14% for fresh seeds (GF) and 2.85% for GFTA, and by day 30, 80% for fresh seeds and 41.42% for GFTA (Figure 5).

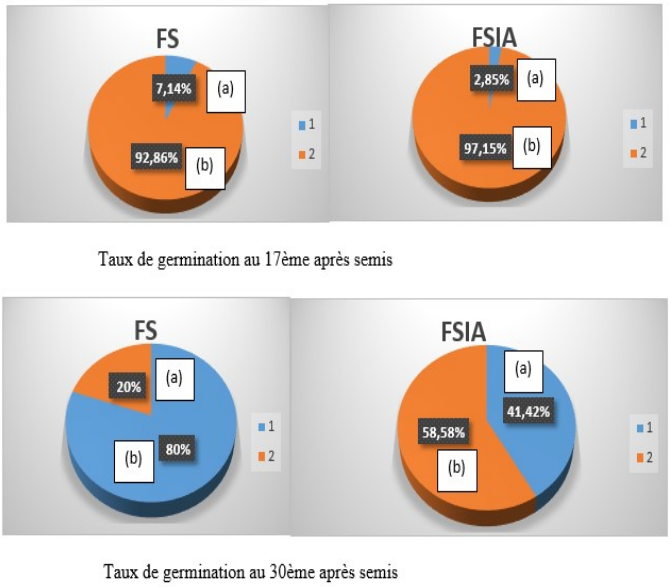

Figure 5. Germination Rate

DISCUSSION

Not all the *S. senegalensis* seeds sown germinated, only the fresh seeds. The two (02) types of fresh seeds (those sown directly and those so aked in germination activator) germinated. Fresh seeds sown directly had germination rate of 80%, while fresh seeds soaked in germination activatorhada germination rate of 41.42%. These results are in line with those of Altiné, (2000). In which the germination rate of direct-sown *Saba senegalensis* seeds was 91%. This shows that for *Saba senegalensis* regeneration, fresh seeds should beused as seed. The dry seeds did not germinate at all. This could be explained by a loss of germination capacity, certainly due to the effect of ambient air or sun and the time taken for sowing. Long storage of fruit slows germination. This is in line with the work of Diawara *et al*, (2020) who show that after one month's storage, the germination percentage falls from 77% to 38% for seeds kept in the refrigerator and from 77% to 34% for seeds kept in ambient conditions during the same storage period, in ambient conditions, the fruits weredried. After sowing, the first germinated plants appear on the 17th day, while the work of Diawara *et al* (2020) in Burkina Faso observed the first plants on the 3rd day. The same applies to the work of Amani et al. (2015), whose germination of four common Combret aceaespecies (*Combretum glutinosum*, *Combretum micranthum*, *Combretum nigrians* and *Guiera senegalensis*) was observed on days 9, 16 and 18 respectively. This could be explained by plant variety, soil type, climate, seed dormancy and family type.

CONCLUSION

The aim of the study on the *S. senegalensis* germination trial in Abidjan was to determine the optimum seed for optimal growth in an industrial plantation. This study, carried out at the Centre National de Floristique of the Felix Houphouët Boigny University, contributed to knowledge on the acquisition of seed types favorable to *S. senegalensis* growth. The results showed that directly sown fresh seeds are the most suitable for growing *S. senegalensis*, with a germination rate of 80% on a ferralsol in southern Côte d'Ivoire.

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