Adansonia digitata L.

Abebe Shume[1], Mubarek Eshetie[*4], Yonas Belete[2], Girma Niguse[1], Birhan Wore[1], Menale Wondie[3], Beyene Belay[3], Getu Abebe[4], Yekoye Alene[1], Amaru Semhagn[1] and Sleshi Asmare[1]*

[1]Sekota Dry Land Agricultural Research Center, P.Box, 62 Sekota, Ethiopia*

[2]Debretabor University, Department of Forestry Debretabor, Ethiopia

[3]Amhara Agricultural Research Institute, Forestry Research Directorate, Bahir Dar, Ethiopia

[4]Gondar Agricultural Research Center, Forestry Research Directorate, Gondar, Ethiopia*

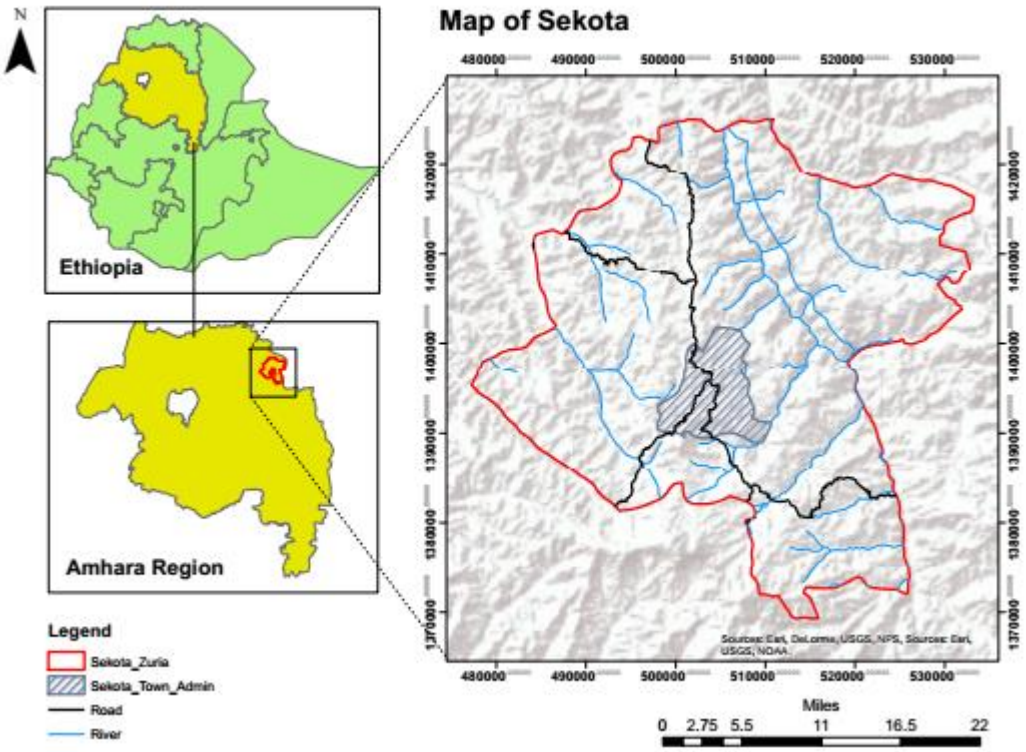
Corresponding author email: eshete99@gmail.com

Adansonia digitata (L.) (Baobab) seeds have very hard seed coats and the natural germination rate is less than 20%. Hence, the general objective of the study is to evaluate the germination capacity of baobab seeds under different pre-sowing treatment techniques. Besides, the study evaluates the early growth performance of baobab seedlings under different irrigation periods in the nursery. The experiment was carried out in in Sakota Dry land Agriculture Research Center laboratory, Ziquala district, Amhara region. The experiment consisted of seven treatments, three physical (hot water socking for 5-7 minutes plus nicking), cold water socking for 72 hours plus nicking and nicking only) and four chemical (soaking the seeds in concentrated sulphuric and acid nitric acid for 1 and 6 hours) pre-sowing treatments in the laboratory. However, early observations prevail that germination was possible only in the three physical treatments. Therefore, it was a very important and pressing issue to work on pre-sowing treatments focusing on physical treatments. Based on this, six physical pre-sowing techniques have been formulated and implemented. Subsequently, the frequency of watering experiment was replicated four times using a randomized complete block design in the nursery. Seed pre-sowing techniques have significant differences in early germination dates at the nursery. Scarifying seeds and soaking in cold water for 12 hours (T1) recorded the least germination time and the highest germination percentage (60.7%). Watering frequency had a significant effect on growth parameters of baobab seedlings ($P<0.05$). The results of pre-sowing treatment techniques indicate that without proper pre-sowing treatment, baobab seeds cannot germinate effectively. Furthermore, daily watering improves the growth parameters of baobab seedlings more than other watering frequencies. Treatment 01 (T1) shortens the germination period and improves the germination rate. This treatment rapidly softens the impervious membrane, promote water entry and gas exchange through the embryo and thus stimulating the embryo to emerge. In addition, daily watering helps improve the growth of the Baobab seedling and produce a vigorous seedling. Therefore, scarifying seeds and soaking them in cold water for 12 hours enhances germination of the Baobab seeds. In

addition, watering about 200 ml of water per seedling per day enhances early growth performance and biomass production at the nursery site.

Baobab, Nursery, Pre-sowing treatment, Seed, Seedlings

Adansonia digitata L



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q q g q g q j /q ffl q g q j
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9/ ffq q j 17 g q
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g g ffl ȷ g q q *Baobab* jj
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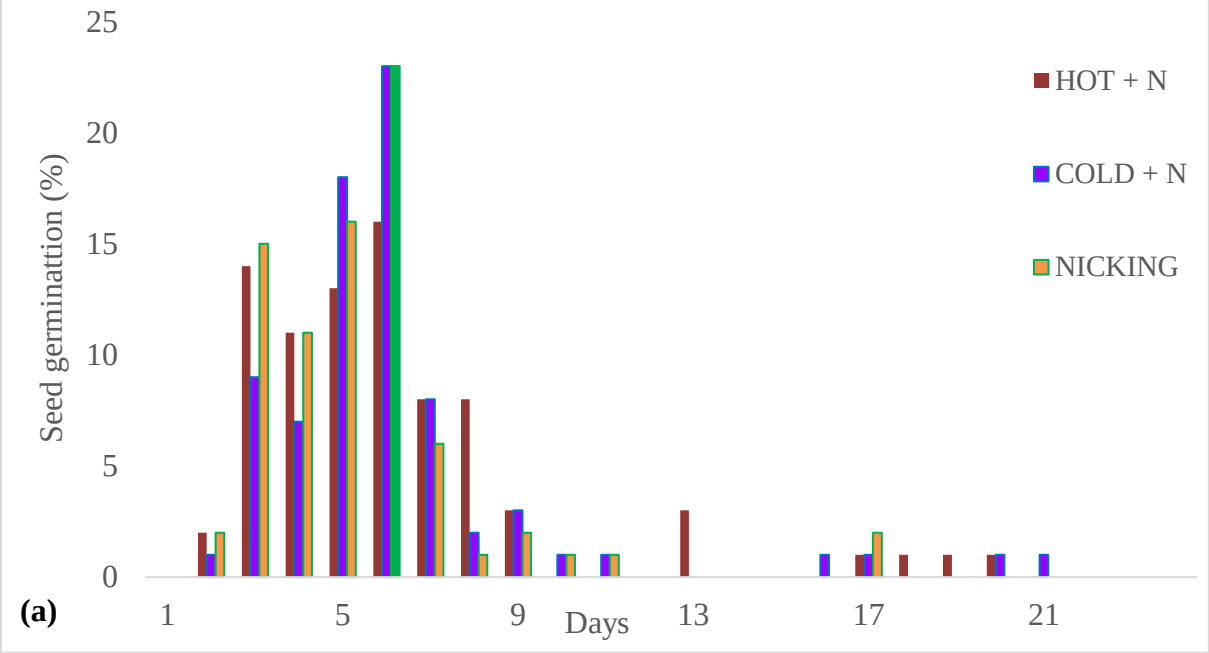
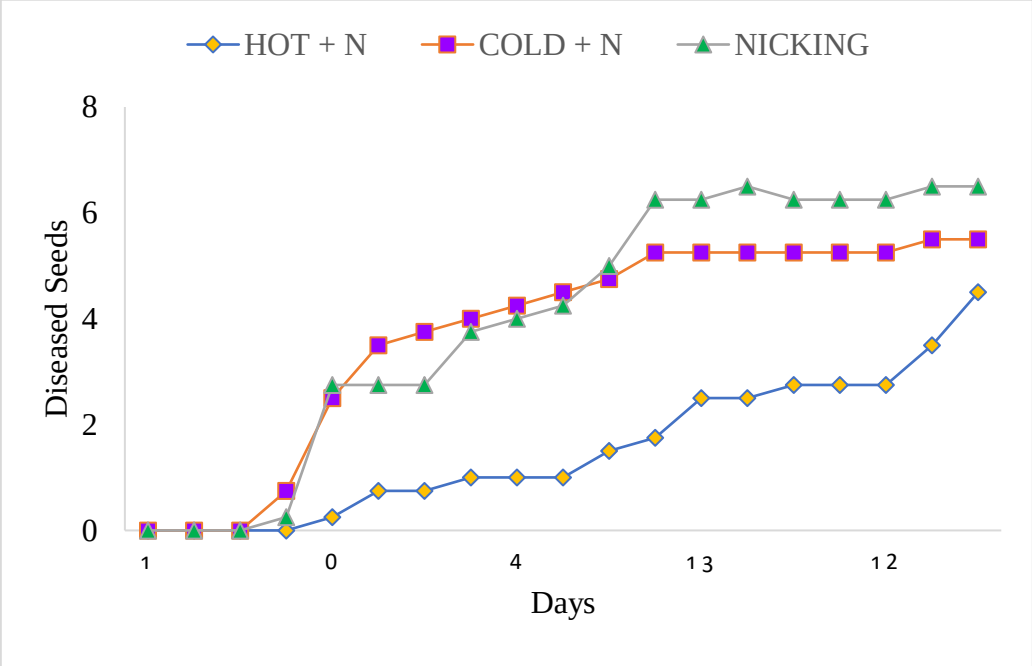




ffl 7 ffl q q q q q 77
q q /q ffl g q *Note: HOT + N mean hot water plus nicking, COLD + N means cold water plus nicking and NICKING means nicking of seeds.*

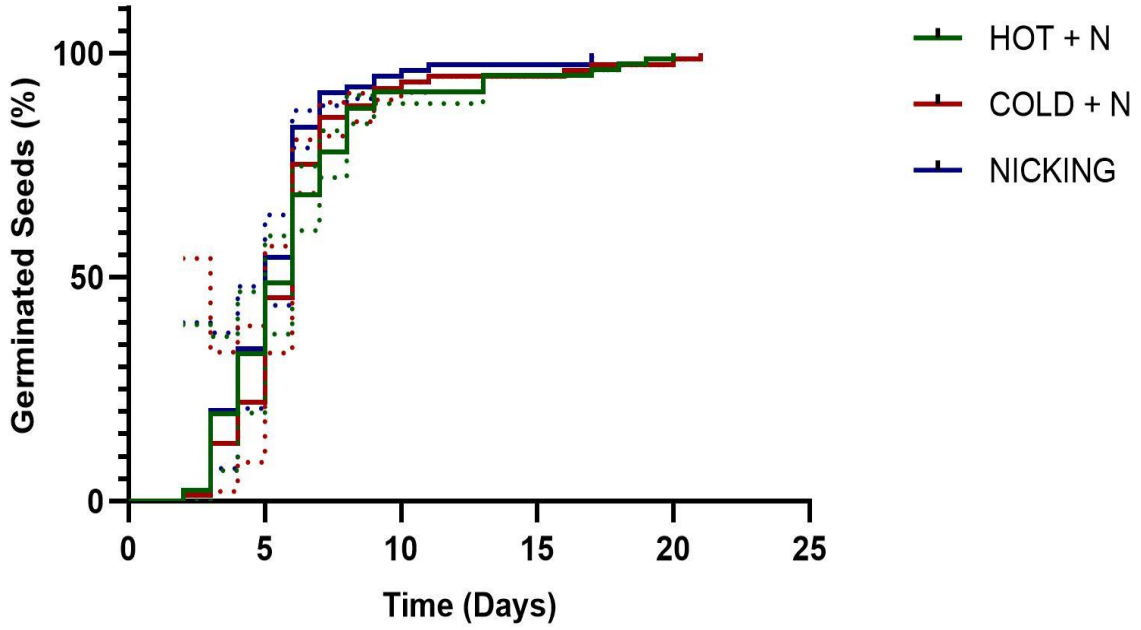
G j q ffl j j q ffl ffl q
/ / j qq j ffl ffl q j j

q q q g q g ȷ ffl q q
q q w g g q / ȷ q g
ȷ qq ȷ ffl g q ffl ffl q ffl / /
ȷ qq ffl ȷ/ w q ffl 3 G g q q ffl
q 5 109 40 g ȷ ȷ
1

ȷ 1 ffl *Adansonia digitata* q q g q

G q	17 21		5 532
G q	1 033	q	5 444
q	/11 17	q	5 530

*Note: * represent there is a significant difference between treatments and ns means there is no significant difference between treatments (α < 0.05).*



ffl 3 ffl q q q 77 q /
q ffl g q

1 7 9 q ffl 54 11 17 q
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q fflq q J 17 g q J q fflq q g 15
q g qg q q J q ffl q fflq q g
15 q J q ffkq q J 17g q g q ffl
5 50 J 7

g ffl q q ffl J 5 50 q /q ffl
g q J 7 g qg q q ffl q q q ffl
q q q ffl J 17 g q 1 q ffl q fflq q g
15 q 7 17 q g J ffl q q ffl q q
q fflq q J 17 g q 9 q q 0 73 70
q q J g q q ffl J 5 50 g g
g q q ffkq q 3 q ffkq q g 15 q 1

g q J q qg g ffl ffl q q ffl J 5 50
q /q ffl g q J 1 . g g ffkg q ffl ffl q
q q q ffl q ffl J 17 g q 15 2 JJ
q ffl q ffl g 15 q 91 2 q ffkq q 91 2 q ffl
J 17 g q 33 4 q q 72 3 q ffl g
73 3 g q ffl q ffl 7 3 9 g q
q ffl J 5 50 1 0 1

J 7 /q ffl g q ffl *Adansonia digitata*
q q g q .

1	ffl q fflq q J	17g q	4	17	15 2
7	ffl q fflq q g	15	11	17	91 2
3	fflq q J		10	75	91 2
9	fflq q J	17g q	17	73	33 4
0	J q q		32	70	72 3
1	fflq q g	15	10	77	73 3
			11 0	14 3	34 3
	5 50				
			19 7	14 0	13 7

Note: De=Days of emergency, Gpd= Germination period in weeks, Gp= Germination percentage

g g ffl g q g g ffl q g ffl q J ffl 71 2
JJ ffl g q 13 1 g J q J q ffl
19 q 2 9 ffl ffl q g q ffl 5 50 q J ffl g ffl
G g q ffl q 7 3 3 9 J 3

ffl g q ffl 5 50 q J ffl ffl g g
g ffl q g q J ffl 5 1 3 q Jq
5 1 g q q q ffl J g q J ffl q g 2 19 q
G J q ffl 2 19 q q q JJ q J J 9

g ffl g q ffl 5 50 g q J ffl J q
g / gq q J ffl q g g J g q ffl J 5 50 g ffl
J q 71 g g q q J ffl 53 52 19 q J
g q q ffl q J ffl 2 19 q
J

J 3 g ffl ffl q J ffl g ffl

1 J ffl	3 3	4 3	10 3	71 2
7 ffl 3 q	9 5	1 0	3 0	13 1
3 ffl 2 q	9 1	0 1	1 9	3 5
9 ffl 19 q	9 3	0 9	0 2	2 9
	9 5	1 3	4 1	17 0
5 50	q			
	77	71	73	72

J 9 g ffl ffl q J ffl g
J q

J ffl	9	15	5 3	10	5 1	71	5 1
ffl 3 q	0	1	5 3	3	5 9	17	5 1
ffl 2 q	0	0	5 3	9	5 3	0	5 3
ffl 19 q	0	7	5 7	7	5 7	3	5 7
	9 2	1	5 3	2	5 9	15	5 9
5 50	q						
	19	12	73	72	73	31	30

Note: NL=Number of leaves/five seedlings, RCD=Root Collar Diameter

g qg qq *Adansonia digitata* q J ffq q q ffl J 5 50
ffl ffl ffl q qg ffg 22 3 ffl q g ffg q q J ffq
g g q q ffl J 5 50 q J ffq 3 2 19 q
J g J g J q J q q J ffq 19 q Jq 7ffl
g qg q ffg 35 3ffl q q g ffg q q J ffq J g g q
q ffl J 5 50 g ffg q g q J ffq 3 2 19 q g ffl
g q ffl 5 50 qg J q ffg g q J ffq g
J g q ffl J g ffg qg J q ffg 12ffl 5 50 g g q
53 52 19 q ffl 7

J ffq w q ffl ffl q g q ffl 5 50 q
ffg g qq J ffq g g g g ffg q
ffg 15ffl g g q q ffl J 5 50 g q 53 52
19 q J ffl 9 J ffq g q ffl J 5 50
g ffg q q ffg 2 3ffl JJ q J ffq g 3 q
7 3ffl q ffl J g ffl 3 2 19 q ffl 9
q ffl q q J q ffg q J ffq g
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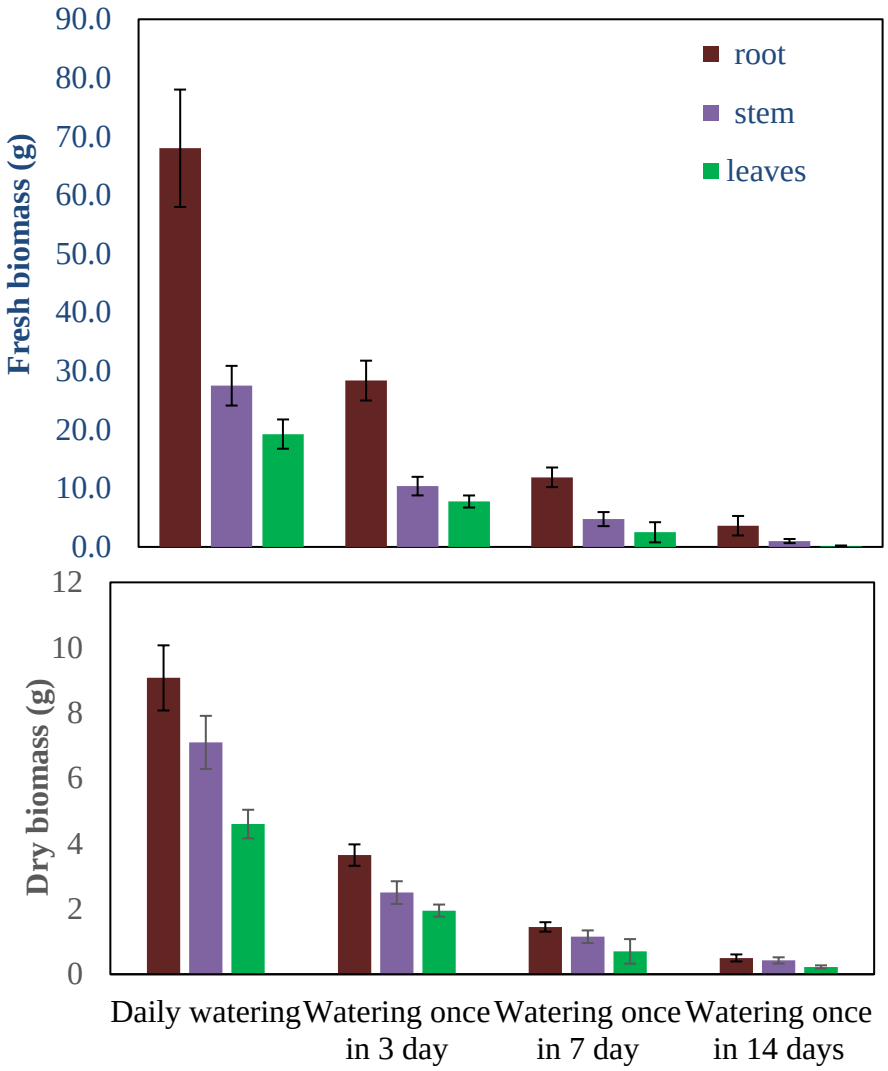

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q w ffl q J q q g q jg q
J 7514 G / q q q g q J g J
w ffl J J 7511! J J 7514!
J 7511 q q q g g /q ffl q q q
g g q q ffl J g g ffl q q q
J J 7513! q 7519! jg q J 7514

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q g J JJ g g q q q J
g J J 7514 g g q ffl q q *Acacia nilotica and*
Faihedrbia albida J ffl ffl q q ffl J ffl g q
q J q q JJ ffl g q
Jg q J 7514! J 7514 g q q ffl g g q g
q g g ffl g g q q ffl q q
w g ffl y J7511 ffl g q *Peltophorum africanum* q J 30
33 ffl g 35 g q q J7513

ffl q ffl J g *Adansonia digitata* q q J
ffl J q g q ffl
w g ffl ffl q q q J ffl y g J q q g q q ffl g
q J ffl g q J g q q q g g J J 7519 g
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Adansonia digitata q q ffl q q g g 15 q
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J ffl *Annona muricata* *Phileno ptera violacea* q q
J ffl 1 3 0 q J q q Jq J g g
J 7513 g g q ffl *Peltophorum africanum* q q J ffl
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/q ffl g q q *Adansonia digitata* q ffl J g ffl
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75 J g ffl J ffl J !
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g ffl q ȷ ffq g q q g q
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gq g q qq g q q g ȷ 7511 ȷ q qg q
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w q g q ȷ q g ffl g qq q ȷ ȷ
g q ȷ q g 7511 q q ȷ 7514 ȷq
qg g q q ȷ g g ȷ *Tetrapleura tetraptera* q ȷ ffq

g ffl q ȷ ffl ffl g g ffg ȷȷ ȷ q
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q ȷȷ q g q q ȷq ffl g q 7512 g
g ffl g q g ffl g *Grevillea robusta, Moringa olifera, and Cordia africana.* g q q ȷȷ ffl g g q ȷ g 7511 g
g g ffg ffl g *Adansonia digitata* q ȷ ffq q
ȷ q q ȷ g q g q g ffq
q ffl g g q ȷ g g ffg q ffl g *Parkia biglobosa* q ȷ ffq g
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g q q g q q ȷ q q ȷ g q ȷ 7510 g q q ȷ
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y G q 7511 /q ffl q
q ffl ffl ffl g *Acacia auriculiformis Journal of Forestry Research 22* 133/133
ɹ y 7511 g ffl g *Balanites aegyptiaca* q ɹ ffq
ffl ɹq g q *https://doi.org/10.4314/as.v15i3.5*
y ffl aq 7552 *Useful Trees and Shrubs of Ethiopia: Identification, Propagation, and Management for 17 Agroclimatic Zones.*

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Adansonia digitata q ɹ ffq q q ffg q qq *South African Journal of Botany* 33 933 991
g 7515 *Baobab (Adansonia digitata L .) foods from Benin : composition , processing and quality.* ffl ffl q
G q 7512 q
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q *Journal of Health and Environmental Research 3* 1 45/42
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International Journal of Forestry Research
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Parkia biglobosa g J ffq q *European Scientific Journal 11* 17 313 370

Jg q g 7514 ffl q *Philenoptera violacea* J yq g g q ffl /q ffl g q *Journal of Agriculture and Environmental Sciences* 3 1 159/115

JJ q 7557 *Baobab Adansonia digitata L.* ffl g q g g q ffJ