

## False brandy bush (*Grewia bicolor*)

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Click on the "Nutritional aspects" tab for recommendations for ruminants, pigs, poultry, rabbits, horses, fish and crustaceans



### Common names

False brandy bush, bastard brandy bush, donkey berry, two-coloured grewia, white raisin [English]; grevieur, grévier bicolore, nogo blanc [French]; mfukufuku, mkone, mkole [Swahili]; debhi [Somali]; sefa, somaya, teye [Amharic]; basterrosyntjie [Afrikaans] ([Brink, 2007](#); [Janick et al., 2008](#))

### Species

*Grewia bicolor* A. Juss. [Malvaceae]

### Synonyms

*Grewia disticha* Dinter & Burret, *Grewia kwebensis* N.E.Br., *Grewia miniata* Mast. ex Hiern

### Feed categories

● Forage trees ● Other forage plants ● Forage plants

### Related feed(s)

● Biul (*Grewia optiva*) ● Grewia (*Grewia kakothamnos*)

### Description

False brandy bush (*Grewia bicolor* A. Juss.) is a many-stemmed shrub that may reach 7 to 14 m high. The bark is dark grey, deeply fissured and scaly in older trees. The leaves are alternate, elliptic to lanceolate, 1.5-12 cm long x 1-6 cm broad and typically bicoloured: the upper surface is dull green while the lower one is silvery white ([Orwa et al., 2009](#); [Brink, 2007](#)). The flowers are pentamerous, yellow, 1.5 cm in diameter. The fruit is a 2-lobed drupe, sometimes hairy, orange to purple black in colour and with a hard woody endocarp ([Orwa et al., 2009](#); [Brink, 2007](#)).

*Grewia bicolor* is a multipurpose shrub. The wood is valuable for construction, utensils, fuel and charcoal. The bark can be used for ropes. Sticks are useful for basketry. Bark and roots have many ethno-medicinal properties due to their high content in triterpenes and alkaloids ([Baumer, 1983](#); [Jasper et al., 1986](#); [Augustino et al., 2011](#)). The bark is used to clarify muddy water and sorghum wort, and to alleviate the bitterness of sorghum beer ([Orwa et al., 2009](#); [Brink, 2007](#); [Sawadogo Lingani et al., 2007](#)). The mucilaginous leaves can be infused or used as binding agents in sauces. The berries are edible and used to make drinks ([Baumer, 1983](#); [Jasper et al., 1986](#); [Augustino et al., 2011](#)). The tree is used as an ornamental tree, as a shade tree and as bee forage ([Orwa et al., 2009](#); [Brink, 2007](#)).

*Grewia bicolor* is browsed by livestock and considered to be an important and highly palatable browse species in farmers surveys in Eastern Africa ([Terefe et al., 2010](#); [Komwihangilo et al., 2001](#); [Mtengeti et al., 2006](#)). The fruits may be used as fodder ([Orwa et al., 2009](#)).

### Distribution

*Grewia bicolor* is widely occurring in the dry savannas of the Sudano-Sahel zone and Eastern and Southern Africa. It can be found in the Arabian Peninsula and in India ([Le Houérou, 1980c](#); [Baumer, 1983](#)). It grows in low to medium altitudes, on rocky slopes, river banks or low lying depressions. It has also been found at higher altitudes (up to 2000 m). *Grewia bicolor* is a very drought-tolerant species that can survive in areas where annual rainfall ranges from 200 to 900 mm. It does well on rich, shallow sandy soils, occasionally on red clays ([Brink, 2007](#)).

### Forage management

*Grewia bicolor* can be sown from seed or vegetatively propagated through cuttings or root suckers. Seeds can be stored up to one year before sowing. It coppices and prunes easily ([Brink, 2007](#)). *Grewia bicolor* mostly sheds its leaves during the dry season and flourishes during the rains ([Brink, 2007](#)).

### Environmental impact

#### Biodiversity conservation

During the dry season, *Grewia bicolor* is a necessary fodder for pure browsing species such as the Western Giant eland (*Taurotragus derbianus derbianus*, a critically endangered antelope). *Grewia bicolor* and other woody savanna species should thus be considered for conservation in enclosures ([Hejrcmanova et al., 2010](#)). However, the extremely dense foliage of *Grewia bicolor* can also impede access by browsers, thus reducing availability ([Pellevé, 1980](#)).

#### Automatic translation

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#### Feed categories

##### All feeds

##### Forage plants

- ▶ Cereal and grass forages
- ▶ Legume forages
- ▶ Forage trees
- ▶ Aquatic plants
- ▶ Other forage plants

##### Plant products/by-products

- ▶ Cereal grains and by-products
- ▶ Legume seeds and by-products
- ▶ Oil plants and by-products
- ▶ Fruits and by-products
- ▶ Roots, tubers and by-products
- ▶ Sugar processing by-products
- ▶ Plant oils and fats
- ▶ Other plant by-products

##### Feeds of animal origin

- ▶ Animal by-products
- ▶ Dairy products/by-products
- ▶ Animal fats and oils
- ▶ Insects

##### Other feeds

- ▶ Minerals
- ▶ Other products

#### Latin names

##### Plant and animal families

##### Plant and animal species

#### Resources

##### Broadening horizons

##### Literature search

##### Image search

##### Glossary

##### External resources

- ▶ Literature databases
- ▶ Feeds and plants databases
- ▶ Organisations & networks
- ▶ Books
- ▶ Journals

## Datasheet citation

Heuzé V., Tran G., Delagarde R., Bastianelli D., Lebas F., 2015. *False brandy bush (Grewia bicolor)*. Feedipedia, a programme by INRA, CIRAD, AFZ and FAO. <http://feedipedia.org/node/148> Last updated on July 3, 2015, 11:20

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### Nutritional attributes

Fresh browse of *Grewia bicolor* is a good quality fodder, with a relatively high protein content (10-21% DM) and moderate fibre content, depending on the respective amounts of twigs and leaves ([Le Houérou, 1980a](#); [Le Houérou, 1980b](#); [Baumer, 1983](#); [Osolo et al., 1994](#); [Feedipedia, 2013](#)). Lignin content is important (8-16% DM) ([Feedipedia, 2013](#)). The protein value of the leaves depends on their maturity: in Botswana, the crude protein of *Grewia bicolor* leaves decreased from 17-20% DM during the rainy season to 8-12% DM in dry season ([Aganga et al., 2000](#)). Dry leaves after defoliation are poor in protein (5-7% DM) ([Baumer, 1983](#); [Feedipedia, 2013](#)). *Grewia* leaves are a good source of several macro- and micro-minerals ([Baumer, 1983](#); [Osolo et al., 1994](#); [Aganga et al., 2000](#); [Kabasa et al., 2004](#); [Aganga et al., 2008](#)). Over a large range of indigenous browse species in African rangelands, *Grewia bicolor* has been ranked as the most valuable source of minerals for goats, which helps explain selectivity and overgrazing of that species ([Kabasa et al., 2004](#)).

Fruits (berries) are poor in protein (5-8% DM) and rich in fibre (40-44% DM) ([Feedipedia, 2013](#)).

### Ruminants

*Grewia bicolor* is browsed by ruminants at the end of the dry season to supplement low quality forages, at a time when trees are naturally totally defoliated ([Dicko-Touré, 1980](#); [Baumer, 1983](#); [Osolo et al., 1994](#)). No data are available for *in vivo* digestibility and animal performance, but *in vitro* DM digestibility data range from 43 to 60% ([Feedipedia, 2013](#)). *Grewia bicolor* foliage has been reported to be palatable to all herbivores during the dry season ([Le Houérou, 1980b](#)). In a survey done in Burkina Faso, 91% of farmers cited *Grewia bicolor* as one of the most valuable forages due to its availability, high production and good quality for cattle, sheep and goats ([Sanon et al., 2007](#)). In Kenya, *Grewia bicolor* has been ranked as one of the preferred forages by free-ranging East African goats when compared to a selection of 105 forage species ([Osolo et al., 1994](#)). In a comparison of 25 browse species in semi-arid Tanzania, *Grewia bicolor* ranked 2<sup>nd</sup> after *Albizia petersiana* in terms of intake rate by goats (11.2 g DM/min) and 5<sup>th</sup> in terms of importance according to livestock farmers ([Mtengeti et al., 2006](#)). This is in accordance with previous studies that showed *Grewia bicolor* to be one of the main diet components of goat diets during mid and late dry season ([Stuth et al., 1990](#)).

The fruits of *Grewia* species dry out and remain on the branches, providing a smaller but prolonged feed source ([Walker, 1980](#)).

### Pigs

No information found (2013).

### Poultry

No information found (2013).

### Rabbits

No specific literature seems available on the utilisation of *Grewia bicolor* in rabbit feeding (June 2015). Nevertheless because foliage of other *Grewia* spp (e.g. *G. optiva*) could be safely used as forage in addition to a concentrate in rabbit feeding ([Sing et al., 1986](#)), and because it is also a forage appreciated by sheep, goat and cattle ([Pamo, 2006](#)), it can be assumed that *Grewia bicolor* leaves are suitable to feed rabbits, most probable as complement of a concentrate. However, specific studies are desirable.




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- ▶ Plant oils and fats
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##### Feeds of animal origin

- ▶ Animal by-products
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## False brandy bush (*Grewia bicolor*)

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### Tables of chemical composition and nutritional value

- False brandy bush (*Grewia bicolor*), aerial part, fresh
- False brandy bush (*Grewia bicolor*), leaves, dry
- False brandy bush (*Grewia bicolor*), fruits

Avg: average or predicted value; SD: standard deviation; Min: minimum value; Max: maximum value; Nb: number of values (samples) used

#### False brandy bush (*Grewia bicolor*), aerial part, fresh



Main analysis	Unit	Avg	SD	Min	Max	Nb
Dry matter	% as fed	44.2	6.5	36.0	54.9	6
Crude protein	% DM	15.2	3.4	9.6	21.5	28
Crude fibre	% DM	22.4	4.0	17.0	31.8	13
NDF	% DM	44.9	6.1	36.2	57.1	10
ADF	% DM	28.7	5.4	19.5	42.0	13
Lignin	% DM	10.6	1.9	8.4	15.6	11
Ether extract	% DM	5.0	2.0	2.2	7.2	13
Ash	% DM	10.1	2.0	6.1	14.1	26
Gross energy	MJ/kg DM	18.5				*

Minerals	Unit	Avg	SD	Min	Max	Nb
Calcium	g/kg DM	19.7	5.0	8.0	28.1	19
Phosphorus	g/kg DM	1.6	0.8	0.5	3.0	19
Potassium	g/kg DM	13.7	3.5	9.7	19.1	11
Sodium	g/kg DM	0.2	0.1	0.1	0.2	3
Magnesium	g/kg DM	4.6	0.7	3.8	5.7	10
Manganese	mg/kg DM	208		150	266	2
Zinc	mg/kg DM	20		18	22	2
Copper	mg/kg DM	20		19	21	2

Secondary metabolites	Unit	Avg	SD	Min	Max	Nb
Tannins (eq. tannic acid)	g/kg DM	19.2	14.2	2.2	34.5	4
Tannins, condensed (eq. catechin)	g/kg DM	0.0				1

In vitro digestibility and solubility	Unit	Avg	SD	Min	Max	Nb
OM digestibility, pepsin-cellulase	%	52.3	6.5	43.2	60.3	5

Ruminant nutritive values	Unit	Avg	SD	Min	Max	Nb
OM digestibility, Ruminant	%	70.9				*
Energy digestibility, ruminants	%	68.0				*
DE ruminants	MJ/kg DM	12.6				*
ME ruminants	MJ/kg DM	10.2				*
a (N)	%	39.0				1
b (N)	%	56.0				1
c (N)	h-1	0.042				1
Nitrogen degradability (effective, k=4%)	%	68				*
Nitrogen degradability (effective, k=6%)	%	62				*

The asterisk \* indicates that the average value was obtained by an equation.

#### References

CIRAD, 1991; Dougall et al., 1958; Fall Touré, 1991; Lamprey et al., 1980; Le Houérou, 1980; Mtengeti et al., 2006

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False brandy bush (*Grewia bicolor*), leaves, dry

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#### Feed categories

##### All feeds

##### Forage plants

- Cereal and grass forages
- Legume forages
- Forage trees
- Aquatic plants
- Other forage plants

##### Plant products/by-products

- Cereal grains and by-products
- Legume seeds and by-products
- Oil plants and by-products
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Dry leaves on the ground or remaining on the branches at the end of the dry season



Main analysis	Unit	Avg	SD	Min	Max	Nb
Dry matter	% as fed	90.0	4.5	84.2	94.5	4
Crude protein	% DM	11.0	5.1	5.8	16.2	4
Crude fibre	% DM	18.4	1.0	17.5	19.5	4
NDF	% DM	41.6				1
ADF	% DM	28.0				1
Lignin	% DM	9.1				1
Ether extract	% DM	5.8	4.1	1.2	8.9	3
Ash	% DM	13.4	2.6	9.8	15.9	4
Gross energy	MJ/kg DM	17.7				*

Minerals	Unit	Avg	SD	Min	Max	Nb
Calcium	g/kg DM	30.6	6.2	22.6	37.7	4
Phosphorus	g/kg DM	1.3	0.3	0.9	1.6	4
Potassium	g/kg DM	9.9	5.4	5.7	16.0	3
Sodium	g/kg DM	0.3				1
Magnesium	g/kg DM	4.8	1.6	3.4	6.6	3
Manganese	mg/kg DM	70		64	76	2
Zinc	mg/kg DM	22		22	22	2
Copper	mg/kg DM	11		6	15	2

Ruminant nutritive values	Unit	Avg	SD	Min	Max	Nb
OM digestibility, Ruminant	%	71.9				*
Energy digestibility, ruminants	%	69.0				*
DE ruminants	MJ/kg DM	12.2				*
ME ruminants	MJ/kg DM	10.0				*

The asterisk \* indicates that the average value was obtained by an equation.

#### References

CIRAD, 1991; INFIC, 1978

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#### False brandy bush (Grewia bicolor), fruits



Main analysis	Unit	Avg	SD	Min	Max	Nb
Dry matter	% as fed	88.7		86.1	91.3	2
Crude protein	% DM	6.3		4.9	7.6	2
Crude fibre	% DM	38.1		36.3	40.0	2
NDF	% DM	55.4		53.6	57.3	2
ADF	% DM	41.6		39.7	43.6	2
Lignin	% DM	12.9		12.5	13.4	2
Ether extract	% DM	3.0		2.4	3.5	2
Ash	% DM	5.4		4.2	6.6	2
Gross energy	MJ/kg DM	18.8				*

Minerals	Unit	Avg	SD	Min	Max	Nb
Calcium	g/kg DM	10.1		9.2	11.1	2
Phosphorus	g/kg DM	1.6		1.4	1.9	2
Potassium	g/kg DM	8.5		8.0	9.0	2
Sodium	g/kg DM	0.1				1
Magnesium	g/kg DM	2.4		2.1	2.6	2
Manganese	mg/kg DM	28				1
Zinc	mg/kg DM	19				1
Copper	mg/kg DM	12				1

Ruminant nutritive values	Unit	Avg	SD	Min	Max	Nb
OM digestibility, Ruminant	%	50.5				*
Energy digestibility, ruminants	%	47.6				*
DE ruminants	MJ/kg DM	9.0				*

ME ruminants	MJ/kg DM	7.3	*
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The asterisk \* indicates that the average value was obtained by an equation.

#### References

CIRAD, 1991

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[References](#)

### References

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#### Feed categories

##### All feeds

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28 references found

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