Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
2	Hyacinth Bean	Seed (dry)	Cyanogenic Glucosides	*NULL*	true	false	This toxic compound are broken down by heat.	*NULL*	8,406
3	Hyacinth Bean	Seed	Haemagglutinins	*NULL*	false	false	*NULL*	*NULL*	8,406
4	Hyacinth Bean	Seed	Tannins	*NULL*	false	false	*NULL*	*NULL*	8,406
5	Hyacinth Bean	Seed	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,406
6	Hyacinth Bean	Seed	Trypsin Inhibitors	*NULL*	false	false	The trypsin inhibitor activity can be destroyed by heat.	*NULL*	8,406
7	Gemsbok Bean (Tylosema esculentum)	Seed	Trypsin Inhibitor	*NULL*	false	false	The trypsin inhibitor activity can be destroyed by heat.	*NULL*	8,520
8	Gemsbok Bean (Tylosema esculentum)	Seed	Tannins	*NULL*	false	false	Processing such as cooking and roasting help to reduce or eliminate antinutrients.	*NULL*	8,521
9	Gemsbok Bean (Tylosema esculentum)	Seed	Saponin	*NULL*	false	false	Since saponins degrade with heat, it would be expected that roasting marama beans for a longer time duration at high temperature would degrade the saponins in the beans.	*NULL*	8,522
10	Gemsbok Bean (Tylosema esculentum)	Seed	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,523
11	Hyacinth Bean	Seed	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,525
12	Hyacinth Bean	Seed	Alkaloids	*NULL*	true	false	*NULL*	*NULL*	8,525
13	Niger Seed	Seed	Phytate	Anti-nutritional factors form complexes with nutrients and hence block micronutrients to be absorbed by body cells.	false	false	*NULL*	*NULL*	8,526
14	Niger Seed	Seed	Tannin	Anti-nutritional factors form complexes with nutrients and hence block micronutrients to be absorbed by body cells.	false	false	*NULL*	*NULL*	8,526
15	Niger Seed	Seed	Cyanogenic Glycoside	Cyanogenic glycoside is an anti-nutritional factor known to be a potent cytochrome oxidase inhibitor that inhibits aerobic respiratory system.	true	false	*NULL*	*NULL*	8,530
16	Niger Seed	Seed	Protease Inhibitor	Protease Inhibitor inhibited the trypsin and chymotrypsin activity.	false	false	*NULL*	*NULL*	8,533
17	Chinese Spinach	Leaf	Tannin	*NULL*	false	false	Cooking/conventional boiling method was effective in reducing the tannin content.	*NULL*	8,534
18	Chinese Spinach	Leaf	Oxalate	*NULL*	false	false	Cooking/conventional boiling method was effective in reducing the oxalic acid content.	*NULL*	8,534
19	Chinese Spinach	Leaf	Nitrate	*NULL*	true	false	Can be removed by adequate cooking.	*NULL*	8,535
20	Chinese Spinach	Leaf	Hydrocyanic Acid	*NULL*	true	false	*NULL*	*NULL*	8,535
21	Chinese Spinach	Leaf	Phytic Acid	*NULL*	false	false	*NULL*	*NULL*	8,539
22	Jicama Yam Bean	Seed	Tannin	*NULL*	false	false	The seed processing methods employed (maceration, decortication, cooking, drying, trituration) to obtain the seed flour resulted in significant reductions of tannins.	*NULL*	8,549

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
23	Jicama Yam Bean	Seed	Rotenoid	*NULL*	true	false	The seed processing methods employed (maceration, decortication, cooking, drying, trituration) to obtain the seed flour resulted in significant reductions of tannins.	*NULL*	8,549
24	Jicama Yam Bean	Seed	Haemagglutinins	*NULL*	false	false	Thermal processing (pressure cooking and and roasting).	*NULL*	8,549
25	Jicama Yam Bean	Seed	Trypsin Inhibitor	*NULL*	false	false	*NULL*	*NULL*	8,549
26	Jicama Yam Bean	Seed	Cyanogenic Glycosides	*NULL*	true	false	*NULL*	*NULL*	8,550
27	Jicama Yam Bean	Tuber	Saponin	*NULL*	false	false	*NULL*	*NULL*	8,550
28	Jicama Yam Bean	Leaf	Saponin	*NULL*	false	false	*NULL*	*NULL*	8,550
29	Okra	Pod	Phytate	It can bind some essential mineral nutrients in the digestive tract and can result in mineral deficiencies.	false	false	*NULL*	The phytate composition of the sample might not pose any health hazard.	8,551
30	Okra	Pod	Tannins	Tannins had been reported to affect protein digestibility, adversely influencing the bioavailability of nonhem iron leading to poor iron and calcium absorption, also carbohydrate is affected leading to reduced energy value of a diet containing tannins.	false	false	*NULL*	Tannin content of Okra pod are very low compared to its critical toxicity.	8,551
31	Okra	Pod	Oxalate	Oxalates can have a harmful effect on human reducing calcium absorption and aiding the formation of kidney stones.	false	false	*NULL*	*NULL*	8,551
32	Okra	Leaf	Tannins	Tannins had been reported to affect protein digestibility, adversely influencing the bioavailability of nonhem iron leading to poor iron and calcium absorption, also carbohydrate is affected leading to reduced energy value of a diet containing tannins.	false	false	*NULL*	*NULL*	8,551
33	Okra	Leaf	Phytate	Phytic acid chelates, makes unabsorbable certain important micronutrients such as zinc and iron, and to a lesser extent, also macronutrients such as calcium and magnesium.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551
34	Okra	Leaf	Oxalate	Over consumption of diet with high concentration of oxalate causes kidney stones.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551
35	Okra	Leaf	Saponin	They are dangerous when they get into the blood stream because they quickly haemolyse red blood cells.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551
36	Okra	Fruit	Phytate	Phytic acid chelates, makes unabsorbable certain important micronutrients such as zinc and iron, and to a lesser extent, also macronutrients such as calcium and magnesium.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
38	Okra	Fruit	Oxalate	Over consumption of diet with high concentration of oxalate causes kidney stones.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551
39	Okra	Fruit	Saponin	They are dangerous when they get into the blood stream because they quickly haemolyse red blood cells.	false	false	*NULL*	Values obtained are lower than the established toxic level.	8,551
40	Taro (Cocoyam)	Tuber	Alkaloid	*NULL*	false	false	Fermentation	*NULL*	8,556
41	Taro (Cocoyam)	Tuber	Phytate	Phytates in the form of phytic acid form insoluble salts with metals such as calcium, zinc, iron, and magnesium. Formation of these salts renders the metals unavailable for absorption in the body.	false	false	Fermentation	*NULL*	8,556
42	Taro (Cocoyam)	Tuber	Oxalate	Oxalates turns to precipitate calcium and makes it unavailable for use by the body. Oxalates have also been suspected to cause kidney stones.	false	false	Fermentation	*NULL*	8,556
43	Taro (Cocoyam)	Tuber	Saponin	*NULL*	false	false	Fermentation	*NULL*	8,556
44	Taro (Cocoyam)	Tuber	Hydrocyanic Acid	*NULL*	false	false	Fermentation	*NULL*	8,556
45	Taro (Cocoyam)	Leaf	Oxalate	The presence of oxalate causes sharp irritation and burning sensation in the mouth and throat when tubers or leaves are eaten.	false	false	Boiling	*NULL*	8,556
46	Taro (Cocoyam)	Leaf	Tannin	*NULL*	false	false	Boiling	*NULL*	8,556
47	Taro (Cocoyam)	Leaf	Phytate	Phytates bind minerals in the gastrointestinal tract, making dietary minerals unavailable for absorption and utilization by the body. It decreases calcium bioavailability and forms calcium phytate complexes that inhibit the absorption of Fe and Zn.	false	false	Boiling	*NULL*	8,556
48	Malabar Spinach	Leaf	Tannin	*NULL*	false	false	*NULL*	*NULL*	8,558
49	Malabar Spinach	Leaf	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,558
50	Malabar Spinach	Leaf	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,558
51	Quinoa	Grain	Saponin	Some saponins form complexes with iron and zinc reducing their absorption.	false	false	To overcome this saponins, sweet varieties were developed and for bitter varieties are reported to process by wet methods (strong washing in cold alkaline water), dry methods (heat treatment, extrusion, roasting, or mechanical abrasion) or a combination of both methods.	*NULL*	8,559
52	Quinoa	Grain	Phytic acid	Phytic acid is capable of chelating bivalent minerals (Ca, Fe, Mg, Zn, and Cu), starch, protein and enzymes.	false	false	food preparation methods like steeping, germination and fermentation were reported to reduce the phytic acid content in the grains.	*NULL*	8,559

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
53	Quinoa	Grain	Trypsin inhibitor	The presence of trypsin inhibitor in the intestinal tract reduces the action of trypsin, which is responsible for the digestion of proteins, leading to increased enzyme production by the pancreas with resultant hypertrophy of this organ and reduction in growth.	false	false	Not stated.	*NULL*	8,559
54	Quinoa	Grain	Oxalate	High intake of oxalate in the diet influences the absorption of minerals and trace elements, playing a key role in hyperoxaluria, a risk factor for the formation of calcium oxalate stones in the kidneys, due to the ability of the oxalate to form insoluble complexes with divalent cations in the gastrointestinal tract.	false	false	Not stated.	*NULL*	8,559
55	Malabar Spinach (Basella rubra)	Leaf	Oxalate	The ingestion of large doses of oxalic acid cause corrosive effects in the mouth or intestinal tract, convulsion symptoms and deposition of calcium oxalate crystals in the kidney resulting in stone formation.	false	false	Boiling and steaming.	*NULL*	8,560
56	Malabar Spinach (Basella rubra)	Leaf	Phytic Acid	Phytates lower the bio-availability of calcium, iron, zinc and copper.	false	false	Boiling and steaming.	*NULL*	8,560
57	Malabar Spinach (Basella rubra)	Leaf	Tannin	*NULL*	false	false	*NULL*	*NULL*	8,560
58	Malabar Spinach (Basella rubra)	Leaf	Cyanogenic Glycoside	*NULL*	false	false	*NULL*	The plant has low value of anti nutrients. This implies that the plant leaf is safe and good for human and non ruminant nutrition and health.	8,560
59	Swamp Cabbage	Leaf	Oxalate	The ingestion of large doses of oxalic acid cause corrosive effects in the mouth or intestinal tract, convulsion symptoms and deposition of calcium oxalate crystals in the kidney resulting in stone formation.	false	false	Boiling and steaming.	*NULL*	8,561
60	Swamp Cabbage	Leaf	Phytic Acid	Phytates lower the bio-availability of calcium, iron, zinc and copper.	false	false	Boiling and steaming.	*NULL*	8,561
61	Swamp Cabbage	Leaf	Trypsin Inhibitor	*NULL*	false	false	*NULL*	Very low amount of antinutrient.	8,561
62	Swamp Cabbage	Leaf	Tannin	*NULL*	false	false	*NULL*	Very low amount of antinutrient.	8,561
63	Teff	Grain	Phytic acid	Phytic acid is capable of chelating bivalent minerals (Ca, Fe, Mg, Zn, and Cu), starch, protein and enzymes.	false	false	food preparation methods like steeping, germination and fermentation were reported to reduce the phytic acid content in the grains.	*NULL*	8,559

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
64	Teff	Grain	Saponin	Some saponins form complexes with iron and zinc reducing their absorption.	false	false	To overcome this saponins, sweet varieties were developed and for bitter varieties are reported to process by wet methods (strong washing in cold alkaline water), dry methods (heat treatment, extrusion, roasting, or mechanical abrasion) or a combination of both methods.	*NULL*	8,559
65	Winged Bean	Leaf	Phytate	*NULL*	false	false	*NULL*	Low level of antinutrients.	8,563
66	Winged Bean	Leaf	Oxalate	*NULL*	false	false	*NULL*	Low level of antinutrients.	8,563
67	Winged Bean	Leaf	Tannin	*NULL*	false	false	*NULL*	Low level of antinutrients.	8,563
68	Winged Bean	Seed	Trypsin Inhibitor	*NULL*	false	false	Infrared, autoclaving and boiling water treatments.	*NULL*	8,563
69	Winged Bean	Seed	Haemagglutinin	*NULL*	false	false	Infrared, autoclaving and boiling water treatments.	*NULL*	8,563
70	Winged Bean	Seed	Tannin	*NULL*	false	false	Infrared, autoclaving and boiling water treatments.	*NULL*	8,563
71	Winged Bean	Seed	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,563
74	Winged Bean	Seed	Saponin	The presence of antinutrients in foods preparations particularly for children could hinder the efficient utilization and digestion of some nutrients and therefore reduce their bioavailability but may have beneficial effects on adults.	false	false	The use of moist heat or soaking.	*NULL*	8,563
75	Winged Bean	Seed	Lectin	The presence of antinutrients in foods preparations particularly for children could hinder the efficient utilization and digestion of some nutrients and therefore reduce their bioavailability but may have beneficial effects on adults.	false	false	The use of moist heat or soaking.	*NULL*	8,563
76	Winged Bean	Seed	Phytoglutenins	The presence of antinutrients in foods preparations particularly for children could hinder the efficient utilization and digestion of some nutrients and therefore reduce their bioavailability but may have beneficial effects on adults.	false	false	The use of moist heat or soaking.	*NULL*	8,563
77	Winged Bean	Seed	Cyanogenic Glycosides	The presence of antinutrients in foods preparations particularly for children could hinder the efficient utilization and digestion of some nutrients and therefore reduce their bioavailability but may have beneficial effects on adults.	false	false	The use of moist heat or soaking.	*NULL*	8,563
78	Asystasia	Leaf	Oxalate	Oxalate bind to calcium to form calcium oxalate crystals; these prevent the absorption and utilization of calcium by the body thereby causing diseases such as ricket and osteomalacia.	false	false	*NULL*	*NULL*	8,565

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
79	Asystasia	Leaf	Tannin	Tannin forms complexes with protein and reduce their digestibility and palatability.	false	false	*NULL*	*NULL*	8,565
80	Asystasia	Leaf	Phytate	The binding of phytate with minerals inhibit minerals absorption.	false	false	*NULL*	*NULL*	8,565
81	Asystasia	Leaf	Trypsin Inhibitor	It can cause a drop in intestine trypsin and a decrease in protein digestibility, leading to slower animal growth.	false	false	*NULL*	*NULL*	8,565
82	Asystasia	Leaf	Saponin	*NULL*	false	false	*NULL*	*NULL*	8,565
83	Asystasia	Leaf	Cynogenic Glycosides	*NULL*	false	false	*NULL*	*NULL*	8,565
84	Bitter Gourd	Leaf	Resin	May cause vomiting and diarrhoea.	false	false	*NULL*	Its contain in seeds and the fruit wall	8,567
85	Bitter Gourd	Leaf	Saponin glycoside	May cause vomiting and diarrhoea.	false	false	*NULL*	Its contain in seeds and the fruit wall. Saponin glycoside of the cucurbitacin type	8,567
86	Bitter Gourd	Leaf	Alkaloids	May cause vomiting and diarrhoea.	false	false	*NULL*	Its contain in seeds and the fruit wall.	8,567
87	African Cabbage	Seed	Glucosinolates	Have irritant properties in contact with the skin	false	false	*NULL*	*NULL*	8,568
88	Potherb Fameflower	Whole	Oxalate	Can induce kidney stones if taken in excess	false	false	Blanching or cooking removes nearly half of the soluble oxalate	The presence of oxalate is a drawback since more than 90% of it is present in soluble form	8,284
89	Potherb Fameflower	Whole	Hydrocyanic acid	*NULL*	false	false	*NULL*	Vegetable should be consumed in small quantities only and why it is not recommended for livestock	8,284
90	Potherb Fameflower	Whole	Nitrates	*NULL*	false	false	*NULL*	Caution should be exercised in the use of this vegetable in infant foods. Not removed by cooking	8,284
91	Potherb Fameflower	Whole	Nitrites	*NULL*	false	false	*NULL*	Caution should be exercised in the use of this vegetable in infant foods. Not removed by cooking	8,284
92	Potherb Fameflower	Whole	Saponins	*NULL*	false	false	*NULL*	*NULL*	8,284
93	Vegetable Fern	Whole	Carcinogens	*NULL*	false	false	*NULL*	Found no reports of toxicity for this species, a number of ferns contain carcinogens so some caution is advisable	8,544

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
94	Vegetable Fern	Whole	Thiaminase	Thiaminase, an enzyme that robs the body of its vitamin B complex.	false	false	The enzyme is destroyed by heat or thorough drying, so cooking the plant will remove the thiaminase	In small quantities this enzyme will do no harm to people eating an adequate diet that is rich in vitamin B, though large quantities can cause severe health problems.	8,544
95	Lesser Yam	Tuber	Tannin	Tannins have been reported to form complexes with proteins and reduce their digestibility and palatability	false	false	Their contents in foods are known to reduce through cooking	*NULL*	8,570
96	Lesser Yam	Tuber	Phytates	*NULL*	false	false	*NULL*	*NULL*	8,570
97	Lesser Yam	Tuber	Oxalates	*NULL*	false	false	*NULL*	The oxalates contents of the yams were low	8,570
98	Smooth Loofah	Leaf	Cardiac glycosides	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
99	Smooth Loofah	Leaf	Saponins	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
100	Smooth Loofah	Leaf	Alkaloids	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
101	Smooth Loofah	Fruit	Saponins	Fruits of wild forms are bitter and poisonous	false	false	*NULL*	*NULL*	8,571
102	Smooth Loofah	Fruit	Lucyosides	Lucyosides isolated from the fruit have shown antitussive activity	false	false	*NULL*	*NULL*	8,571
103	Smooth Loofah	Fruit	Ethanolic	Ethanolic extracts of the fruit have shown antibacterial and antifungal activity	false	false	*NULL*	*NULL*	8,571
104	Smooth Loofah	Seed	Saponins	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
105	Smooth Loofah	Seed	Alkaloids	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
106	Smooth Loofah	Seed	Cardiac glycosides	Shown antibacterial activity against Bacillus subtilis, Escherichia coli, Staphylococcus aureus and Salmonella typhi	false	false	*NULL*	*NULL*	8,571
107	Smooth Loofah	Seed	Luffin-a	Luffin-a and luffin-b, proteins isolated from the seed, have shown abortifacient and antitumour activity, and protein-biosynthesis inhibitory activity.	false	false	*NULL*	*NULL*	8,571
108	Smooth Loofah	Seed	Luffacylin	Have shown ribosome inactivating activity. Also has antifungal activity against Fusarium oxysporum and Mycosphaerella arachidicola	false	false	*NULL*	*NULL*	8,571

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
109	Smooth Loofah	Seed	Luffin-b	Luffin-a and luffin-b, proteins isolated from the seed, have shown abortifacient and antitumour activity, and protein-biosynthesis inhibitory activity.	false	false	*NULL*	*NULL*	8,571
110	Smooth Loofah	Seed	Luffin p1	Have shown ribosome inactivating activity. Has anti-HIV-1 activity	false	false	*NULL*	*NULL*	8,571
111	Smooth Loofah	Seed	Luffin-s	Have shown ribosome inactivating activity	false	false	*NULL*	*NULL*	8,571
112	Smooth Loofah	Seed	Sapogenins 1	Two triterpenoids isolated from the seed (sapogenins 1 and 2) have shown in-vivo immunostimulatory effects in mice	false	false	*NULL*	*NULL*	8,571
113	Smooth Loofah	Seed	Sapogenins 2	Two triterpenoids isolated from the seed (sapogenins 1 and 2) have shown in-vivo immunostimulatory effects in mice	false	false	*NULL*	*NULL*	8,571
114	Smooth Loofah	Seed	Oleanolic acid	The triterpene oleanolic acid has shown anti-inflammatory activity	false	false	*NULL*	*NULL*	8,571
115	Marrow	Seed	Oxalate	High oxalate diet can increase the risk of renal calcium absorption and has been implicated as a source of kidney stones	false	false	*NULL*	*NULL*	8,572
116	Marrow	Seed	Phytate	The problem with phytate in food is that it can bind some essential mineral nutrients in the digestive tract and can result in mineral deficiencies	false	false	*NULL*	*NULL*	8,572
117	Marrow	Seed	Hydrocyanic acid	Consumption of high levels of Cyanide is associated with a serious health problem, a neurological disease known as Tropical Ataxis Neurophathy (TAN) was linked to consumption of high level of cyanide in cassava based diet	false	false	*NULL*	Only plants with more than 200 mg of hydrocyanic acid equivalent per 100 mg fresh weight are considered dangerous	8,572
118	Marrow	Seed	Nitrate	Higher concentration of nitrate in the food can lead to a disease called methemoglobianaemia which is known to reduce the ability of red blood cells to carry oxygen	false	false	*NULL*	These values are within the acceptable daily intake of 3.7 mg/kg body weight (WHO)	8,572
119	Chaya	Leaf	Cyanogenic glycosides	Produce hydrogen cyanide upon tissue damage. Long-term contact with the white sap can cause skin irritation	false	false	The cooking time required to lower HCN to safe levels is about 15 minutes	*NULL*	8,573
120	Chaya	Leaf	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,574
121	Chaya	Leaf	Saponins	*NULL*	false	false	*NULL*	*NULL*	8,574
122	Chaya	Leaf	Phytic acid	*NULL*	false	false	*NULL*	*NULL*	8,574
123	Yautia	Tuber	Phytate	Phytate has been recognized as an anti-nutrient due to its adverse effects because it lowers the availability of many minerals such as copper, iron and zinc	false	false	Various studies have shown that the processing methods such as boiling, fermentation and roasting can significantly reduce antinutritional factors	*NULL*	8,575
124	Yautia	Tuber	Tannin	Phytate has been recognized as an anti-nutrient due to its adverse effects because it lowers the availability of many minerals such as copper, iron and zinc	false	false	Various studies have shown that the processing methods such as boiling, fermentation and roasting can significantly reduce antinutritional factors	*NULL*	8,575

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
125	Breadfruit	Fruit	Trypsin inhibitors	*NULL*	false	false	Trypsin inhibitors and haemagglutinin were completely eliminated by cooking	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
126	Breadfruit	Fruit	Oxalate	*NULL*	false	false	Processing by cooking and soaking reduced the concentration of oxalate and tannin.	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
127	Breadfruit	Fruit	Oxalate	*NULL*	false	false	Processing by cooking and soaking reduced the concentration of oxalate and tannin.	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
128	Breadfruit	Fruit	Tannin	*NULL*	false	false	Processing by cooking and soaking reduced the concentration of oxalate and tannin.	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
129	Breadfruit	Fruit	Haemagglutinin	*NULL*	false	false	Trypsin inhibitors and haemagglutinin were completely eliminated by cooking	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
130	Breadfruit	Fruit	Phytic acid	*NULL*	false	false	Soaking was also effective in reducing phytic acid which was unaffected by cooking	Breadfruits harvested from the same tree on a farm around Ile-Ife, Osun State, Nigeria were prepared into meals	8,576
131	Star Gooseberry	Leaf	Alkaloid papaverine	Excessive consumption of the leaf causes dizziness, drowsiness, constipation. Papaverine in uncooked sauropus affects vasodilation, may cause bronchiolitis obliterans, a progressive respiratory distress disease. the harmful effect is due to consumption of large quantities of uncooked leaves (4.5 kg) and drinking raw juice rather than stir-fried or boiled leaves.	false	false	*NULL*	*NULL*	8,577
132	Star Gooseberry	Leaf	Tannins	*NULL*	false	false	*NULL*	*NULL*	8,577
133	Star Gooseberry	Leaf	Saponins	*NULL*	false	false	*NULL*	*NULL*	8,577
134	Star Gooseberry	Leaf	Alkaloids	*NULL*	false	false	*NULL*	*NULL*	8,577
135	Cabbage-tree	Leaf	Glucosinolates	Cause goitre but to a lesser extent than expected on the basis of their concentration	false	false	*NULL*	*NULL*	8,532

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
136	Mashua	Tuber	Thiocyanates	Thesemetabolize upon being hydrolyzed liberate molecules hydrogen cyanide.	false	false	The process of cooking, washing and sifting, exposure to sunlight or in combination lowers the toxicity of the cyanide to values of 9.2 to 9.4 mg per hundred. Cyanide block the transportation of oxygen to the red blood cells	*NULL*	8,578
137	Mashua	Tuber	Glucosinolates	These metabolites could be responsible for suppressing of the sexual appetite and the lowering of the reproductive potential of the Incas during the military operations of the XVI century, according to popular belief	false	false	*NULL*	*NULL*	8,578
138	Fonio	Grain	Phytate	It would be expected that lowering of this compound should enhance the content of such minerals as zinc and iron in the extrudates as phytic acid has been implicated in making these minerals unavailable.	false	false	Extrusion cooking further reduced the level of phytate in the extrudates.	Notes that the anti-nutritional composition is based on the raw samples.	8,579
139	Fonio	Grain	Tannin	*NULL*	false	false	*NULL*	Notes that the anti-nutritional composition is based on the raw samples.	8,579
140	Fonio	Grain	Phenol	*NULL*	false	false	*NULL*	Notes that the anti-nutritional composition is based on the raw samples.	8,579
141	Proso Millet	Grain	Phytates	Phytates bind certain minerals, particularly multivalent cations including Ca, Mg, Fe and Zn, thus made these biologically less available.	false	false	Dehulling reduces the phytate content by 17-24%. Milling, soaking, cooking, fermentation and breadmaking can also reduce phytic acid content of foods.	*NULL*	8,580
142	Proso Millet	Grain	Oxalate	Oxalate content has nutritional importance for its interference with calcium availability. The consumtion of foodstuffs rich in oxalate can induce hyperoxaluria.	false	false	Soluble oxalate can be leached out during normal cooking but in foods they have probably a major effect on oxalate absorption.	*NULL*	8,580
143	Proso Millet	Grain	Enzyme inhibitors	Influence enzymatic activity	false	false	*NULL*	*NULL*	8,580
144	African Rice	Grain	Phytic acid	*NULL*	false	false	*NULL*	*NULL*	8,589
145	Love-Lies-Bleeding	Grain	Phytic acid	It is already known that the phytic acid has the inhibitory effect on starch digestion.	false	false	*NULL*	*NULL*	8,590
146	Love-Lies-Bleeding	Grain	Tannins	They can form complexes with proteins and digestive enzymes, thereby inhibiting protein digestion. Also, depending on the chemical composition, they can inhibit starch digestion.	false	false	*NULL*	*NULL*	8,590
147	Love-Lies-Bleeding	Grain	Protease inhibitors	Protease inhibitors can affecting the regulation of blood glucose levels.	false	false	*NULL*	*NULL*	8,590
148	Love-Lies-Bleeding	Grain	Saponin	They can form complexes with proteins and lipids (for example with cholesterol). They can form complexes with zinc and iron, and thus reduce their absorption.	false	false	*NULL*	*NULL*	8,590

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
149	Finger Millet	Grain	Tannins	Tannins have been found to reduce feed intake, impair nutrient digestibility and nitrogen retention thus causing growth depression of poultry. Tannins have been reported to be responsible for decreases in feed intake, growth rate, feed efficiency, net metabolizable energy, and protein digestibility in experimental animals.	false	false	The tannin content can be reduced through soaking, roasting, boiling, germination and fermentation.	*NULL*	8,592
150	Finger Millet	Grain	Protease Inhibitors	THe protein inhibitors disrupt the protein digestion by rendering unavailability of the digestive enzymes, trypsin and chymotrypsin. Their presence is characterized by compensating hypertrophy of the pancreas.	false	false	*NULL*	*NULL*	8,592
151	Finger Millet	Grain	Non-Starch Polysaccharides [NSPs]	*NULL*	false	false	*NULL*	*NULL*	8,592
152	Purple Amaranth	Leaf	Cyanide	The elevated levels of cyanide recorded at heading of Amaranthus cruentus is enough indication to avoid the inclusion of this popularly consume leafy in our meal at reproductive phase because of the health implications of high ingestion of these toxic substances; cyanide is a culprit in respiratory paralysis.	true	false	*NULL*	*NULL*	8,594
153	Purple Amaranth	Leaf	Oxalate	The elevated levels of oxalates recorded at heading of Amaranthus cruentus is enough indication to avoid the inclusion of this popularly consume leafy in our meal at reproductive phase because of the health implications of high ingestion of these toxic substances; oxalates are responsible for kidney stone and reduction of bioavailability of minerals in the body.	false	false	*NULL*	*NULL*	8,594
154	Machurian Wild Rice	Grain	Cyanogenic glycosides	*NULL*	false	false	*NULL*	*NULL*	8,597
155	Machurian Wild Rice	Grain	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,597
156	Machurian Wild Rice	Grain	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,597
157	Machurian Wild Rice	Grain	Saponins	*NULL*	false	false	*NULL*	*NULL*	8,597
158	Machurian Wild Rice	Grain	Tannins	*NULL*	false	false	*NULL*	*NULL*	8,597
159	Winged Bean	Seed	Tannins	They have also been implicated in the inhibition of digestive enzymes, increased excretion of endogenous protein, and effect on digestive tract.	false	false	*NULL*	*NULL*	8,600
160	Winged Bean	Seed	Phytate	It is an antioxidant that binds to some dietary minerals, interfering with their availability.	false	false	*NULL*	*NULL*	8,600
161	Winged Bean	Seed	Flatulence factors	*NULL*	false	false	*NULL*	*NULL*	8,600
162	Winged Bean	Seed	Saponins	*NULL*	false	false	*NULL*	*NULL*	8,600

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
163	Black Nightshade	Shoot	Saponin	*NULL*	false	false	These are believed to be signifcantly reduced during the process of cooking since they are heat labile.	*NULL*	8,602
164	Black Nightshade	Shoot	Phytate	*NULL*	false	false	These are believed to be signifcantly reduced during the process of cooking since they are heat labile.	*NULL*	8,602
165	Black Nightshade	Shoot	Oxalate	*NULL*	false	false	These are believed to be signifcantly reduced during the process of cooking since they are heat labile.	*NULL*	8,602
166	Black Nightshade	Shoot	Alkaloids	*NULL*	false	false	These are believed to be signifcantly reduced during the process of cooking since they are heat labile.	*NULL*	8,602
167	Celosia	Leaf	Alkaloids	High percentage of alkaloid is toxic to human and animals.	true	false	*NULL*	*NULL*	8,607
168	Celosia	Leaf	Oxalate	Oxalate affects the human body by forming a strong chelate with dietary calcium and other minerals thereby rendering such nutrients unavailable for absorption and assimilation. This insoluble calcium oxalate in the crystal form is stored in the kidney causing serious health-related problems called kidney stone.	false	false	*NULL*	*NULL*	8,607
169	Celosia	Leaf	Oxalate	Oxalate affects the human body by forming a strong chelate with dietary calcium and other minerals thereby rendering such nutrients unavailable for absorption and assimilation. This insoluble calcium oxalate in the crystal form is stored in the kidney causing serious health-related problems called kidney stone.	false	false	*NULL*	*NULL*	8,607
170	Celosia	Leaf	Phytate	Negatively charged phosphate group in phytic acid is known to inhibit the action of gastrointestinal tyrosinase, trypsin, pepsin, lipase, amylase and essential minerals.	false	false	*NULL*	The highest phytate content (8.57± 0.06%) is within the safe limit, since the inhibition of mineral absorption by phytate only occurs at levels greater than 10% in a diet.	8,607
171	Celosia	Leaf	Saponins	Saponins at high concentrations can affect nutrient absorption by inhibition of metabolic and digestive enzymes as well as binding with nutrients such as zinc.	false	false	*NULL*	When saponin in a diet is less than 10%, it is believed to be harmless to the body.	8,607
172	Paper Mulberry	Whole (without root)	Alkaloid	*NULL*	false	false	*NULL*	*NULL*	8,804
173	Paper Mulberry	Whole (without root)	Saponin	*NULL*	false	false	*NULL*	*NULL*	8,804
174	Paper Mulberry	Whole (without root)	Tannin	*NULL*	false	false	*NULL*	*NULL*	8,804

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
175	Paper Mulberry	Whole (without root)	Phenol	*NULL*	false	false	*NULL*	*NULL*	8,804
176	Guava	Seed	Tannins	*NULL*	false	false	Roasting process caused significant decreases in Tannins	*NULL*	8,822
177	Guava	Seed	Phytic acid	*NULL*	false	false	Roasting process caused significant decreases in phytic acid content.	*NULL*	8,822
178	Dogfruit	Seed	Nitrogen compounds	As A. jiringa contains nitrogen compounds, djenkolism is often associated with high level of these compounds leading to azotemia and is capable of causing spasmodic pain, urinary obstruction and acute renal failure. The study highlighted djenkolism as a cause of acute anuric renal failure where the patients had symptoms of poisoning within 48 hours after the seeds intake.	true	false	*NULL*	*NULL*	8,828
179	Akee	Fruit	Phytates	*NULL*	false	false	*NULL*	*NULL*	8,832
180	Akee	Fruit	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,832
181	Akee	Fruit	Tannins	*NULL*	false	false	*NULL*	*NULL*	8,832
182	Soursop	Bark	Alkaloids anonaine	*NULL*	false	false	*NULL*	*NULL*	8,836
183	Moringa	Leaf	Tannin	Tannins are plant polyphenols, which have ability to form complexes with metal ions and with macro-molecules such as proteins and polysaccharides	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
184	Moringa	Leaf	Phytates	Phytates in foods are known to bind with essential minerals (such as calcium, iron, magnesium and zinc) in the digestive tract, resulting in mineral deficiencies	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
185	Moringa	Leaf	Trypsin inhibitors	Trypsin inhibitor inhibits trypsin and chymotrypsin, which play a role in digestion of protein in animals.	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
186	Moringa	Leaf	Saponin	Saponin-protein complex formation can reduce protein digestibility.	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
187	Moringa	Leaf	Oxalate	Oxalate binds with calcium to form calcium-oxalate crystals which are deposited as urinary calcium (stones) that are associated with blockage of renal tubules.	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
188	Moringa	Leaf	Hydrogen cyanide	Hydrogen cyanide is toxic when ingested by monogastric animals in large quantity.	false	false	Proper food processing would reduce anti-nutrients.	*NULL*	8,840
189	Indian Mulberry	Leaf	Tannin	*NULL*	false	false	*NULL*	*NULL*	8,853
190	Indian Mulberry	Leaf	Oxalic acid	*NULL*	false	false	*NULL*	*NULL*	8,853
191	Passionfruit	Seed	Tannin	Tannins interfere with digestion by displaying anti-trypsin and anti-amylase activity form complexes with vitamin B12 and interfere with the bioavailability of protein through complexing reaction with proteins.	false	false	*NULL*	*NULL*	8,863
192	Passionfruit	Seed	Polyphenol	*NULL*	false	false	*NULL*	*NULL*	8,863

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
193	Passionfruit	Seed	Phytate	Phytate acts as a strong chelator, forming protein and mineral phytic acid complexes thereby reducing protein and mineral availability.	false	false	*NULL*	*NULL*	8,863
194	Passionfruit	Seed	Oxalate	Oxalates bind to calcium and prevent its absorption in human body.	false	false	*NULL*	*NULL*	8,863
195	Passionfruit	Seed	Saponin	Saponins in plants may serve as anti-feedants.	false	false	*NULL*	*NULL*	8,863
196	Passionfruit	Seed	Alkaloid	*NULL*	false	false	*NULL*	*NULL*	8,863
197	Passionfruit	Seed	Flavonoid	Flavonoids chelate metals such as iron and zinc and reduce the absorption of these nutrients, but they also inhibit digestive enzymes and may also precipitate proteins.	false	false	*NULL*	*NULL*	8,863
198	Passionfruit	Fruit	Tannin	Tannins interfere with digestion by displaying anti-trypsin and anti-amylase activity form complexes with vitamin B12 and interfere with the bioavailability of protein through complexing reaction with proteins.	false	false	*NULL*	*NULL*	8,863
199	Passionfruit	Fruit	Polyphenol	*NULL*	false	false	*NULL*	*NULL*	8,863
200	Passionfruit	Fruit	Phytate	Phytate acts as a strong chelator, forming protein and mineral phytic acid complexes thereby reducing protein and mineral availability.	false	false	*NULL*	*NULL*	8,863
201	Passionfruit	Fruit	Oxalate	Oxalates bind to calcium and prevent its absorption in human body.	false	false	*NULL*	*NULL*	8,863
202	Passionfruit	Fruit	Flavonoid	Flavonoids chelate metals such as iron and zinc and reduce the absorption of these nutrients, but they also inhibit digestive enzymes and may also precipitate proteins.	false	false	*NULL*	*NULL*	8,863
203	Argan	Seed	Saponins	Have antinutritional effects but it doesn't harm ruminants and pass out with the urine.	false	false	*NULL*	Cattle readily consume argan oil cake in spite of the presence of saponins that may have antinutritional effects. Noted that the greyish-green oil cake contains high amounts of saponins, which do not harm ruminants and pass out with the urine.	8,918
204	Cole's Wattle	Seed	Oxalate	Oxalate tends to form bonds with metal ions to produce an insoluble precipitate. One such is calcium oxalate that has been linked to the development of kidney stones.	false	false	The roasting process was found to reduce this oxalate present by around 30%.	report shows moderate levels of oxalate in Acacia colei seed (2.17 – 2.39 g/100g), much lower than that found in common vegetable such as cabbage and sweet potato	8,919

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
205	Cole's Wattle	Seed	Phytate	Phytate is known to reduce the absorption of micronutrients, including zinc, iron and calcium and niacin.It can also interfere with the action of some digestive enzymes such as pepsin.	false	false	A short period of roasting is sufficient to reduce phytate levels to negligible values.	*NULL*	8,919
206	Cole's Wattle	Seed	Saponins	Saponins are reputed to reduce the availability of iron.	false	false	*NULL*	*NULL*	8,919
207	Cole's Wattle	Seed	Tripsin Inhibitor	Interfere with protein digestion and absorption.	false	false	Cooking was shown to be very effective in reducing trypsin inhibitors to negligible.	Report shows relatively low levels of trypsin inhibitor in Acacia colei with levels ranging between 18 - 24.5 TUI/g.	8,919
208	Cole's Wattle	Seed	Tanin	Tannins can also reduce protein availability by binding with amino acids and rendering them indigestible as well as inhibited digestion and binding of some micronutrients, in particular non-haem iron.	false	false	Tannin levels in acacia seed can be reduced significantly through soaking and cooking.	*NULL*	8,919
209	Cole's Wattle	Seed	S-Carboxyethyl Cysteine	S-carboxyethyl cysteine interferes with methionine availability or absorption. A shortage of absorbable methionine will limit the efficiency of protein use, possibly tipping vulnerable people into deficiency.	false	false	It is stated that the problem could probably be overcome if high methionine foods such as the traditional grain acha (Digitaria exilis) are eaten along with acacia. Moringa leaf would also provide excellent methionine supplementation.	*NULL*	8,919
210	Cole's Wattle	Seed	Djenkolic acid	Symptoms seem to be related to the precipitation and crystallisation of the compound within the urinary system, and include acute renal failure, hematuria, painful loins, nausea, vomiting and abdominal pain.	false	false	*NULL*	Djenkolic acid is a toxic amino acid that is best known as the apparent cause of 'djenkolism', an acute illness that can occur following the consumption of djenkol beans (Archidendron pauciflorum)	8,919
211	Cole's Wattle	Seed	Cyanide	*NULL*	false	false	*NULL*	*NULL*	8,919
212	Corn Rocket	Whole	Gluconapin	*NULL*	false	false	*NULL*	*NULL*	8,920
213	Corn Rocket	Whole	Glucoraphasatin	*NULL*	false	false	*NULL*	*NULL*	8,920
214	Corn Rocket	Whole	Glucoraphenin	*NULL*	false	false	*NULL*	*NULL*	8,920
215	Corn Rocket	Whole	Glucoerucin	*NULL*	false	false	*NULL*	*NULL*	8,920
216	Corn Rocket	Whole	Glucoraphanin	*NULL*	false	false	*NULL*	*NULL*	8,920
217	Corn Rocket	Whole	Glucotropaeolin	*NULL*	false	false	*NULL*	*NULL*	8,920
218	Corn Rocket	Whole	Glucosinalbin	*NULL*	false	false	*NULL*	The total glucosinolate content ranged from 7.0 to 14.6 µmol/g of dry weight, with the major glucosinolate glucosinalbin in all parts.	8,920

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
219	Mugnoli/Wild Cabbage	Whole	Phytate	Pytate (Phytic acid) combines with some essential elements such as iron, calcium, zinc and phosphorus to form insoluble salts called phytates which are not absorbeb by body, thereby reducing the bioavailability of these elements.	false	false	*NULL*	*NULL*	8,921
220	Mugnoli/Wild Cabbage	Whole	Oxalate	When oxalates become too concentrated in body fluids, they can crystallize and cause health problems. Oxalates may also interfere with absorption of calcium from the body.	false	false	*NULL*	*NULL*	8,921
221	Mugnoli/Wild Cabbage	Whole	Tannin	Tannins can acts as anti-nutritional factor by provoking an astringent reaction in the mouth and by making food unpalatable. They can complex with and thus precipitate proteins in the gut, reducing the digestibility or inhibiting digestive enzyme and microorganisms. It also interferes with dietary iron absorption. Tanins(water soluble polyphenols that are present in many plant foods) responsible for decrease in feed intake, growth rate, feed efficacy, net metabolizable energy and protein digestibility in experimental animals.	false	false	*NULL*	Food rich in tannins are considered to be low nutritional value.	8,921
222	Chickpea	Seed	Alkaloids	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
223	Chickpea	Seed	Tannins	Tannins inhibit enzymes, reducing the digestibility and making chickpea astringent.	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
224	Chickpea	Seed	Phytic acid	Phytic acid can bind to several important divalent cations (e.g. iron, zinc, calcium and magnesium) forming insoluble complexes and making them unavailable for absorption and utilization in the small intestine	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
225	Chickpea	Seed	Saponins	Saponins are commonly found in several pulses including chickpea giving the pulses a bitter taste and making them less preferable for consumption by humans and animals.	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
226	Chickpea	Seed	Phenolics	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
227	Chickpea	Seed	Trypsin inhibitors	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
228	Chickpea	Seed	Chymotrypsin inhibitors	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
229	Chickpea	Seed	Lectins	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
230	Chickpea	Seed	Antifungal peptides	*NULL*	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
231	Chickpea	Seed	Protease inhibitors	Protease inhibitors interfere with digestion by irreversibly binding with trypsin and chymotrypsin in the human digestive tract. They are resistant to the digestive enzyme pepsin and the stomach’s acidic pH.They negatively affect certain necessary enzymatic modifications required during food processing like water. retaining capacity, gel-forming and foaming ability of different products	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
232	Chickpea	Seed	Protease inhibitors-Kunitz type	Single chain polypeptides of about 20 kDa with two disulphide bridges which inhibit the enzyme activity of only trypsin but not chymotrypsin.	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922
233	Chickpea	Seed	Protease inhibitors-Bowman-Birk Inhibitors (BBI)	Which are also single chain polypeptides of about 8 kDa in size with seven disulphide bridges which inhibit the enzyme activity of both trypsin and chymotrypsin.	false	false	Though the ANFs act as limiting factors in chickpea consumption, they can be reduced or eliminated by soaking, cooking, boiling and autoclaving.	*NULL*	8,922

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
234	Black Wattle (Acacia mearnsii)	Bark	Tannin	Most studies reporting inhibitory effects against microorganisms at high doses and stimulatory and positive health effects at low concentrations. Furthermore, previous studies showed that acacia tannin extracts induce changes in cell membrane and internal structures resulting in membrane rupture and organelle destruction of microorganisms.Vegetable tannin can inhibit different types of microorganisms and their distribution in the soil. Studies in forest soils demonstrate that additions of high concentrations of phenolic tannins compounds may affect the microbial population of the soil. In addition, soil organisms such as nematodes, annelids and arthropods may also be affected by the toxic effects of plant-based tannins.	false	false	*NULL*	Traditionally, natural tannins have been used for tanning leather, but also there are a wide range of other industrial applications such as pharmaceutical use and water and sewage treatment, acting as flocculants	8,923
235	Gum-arabic	Whole	Oxalate	Oxalates also affect in vivo calcium and magnesium metabolism by complexing with these metals and reducing their bioavailability and utilization. Excessive intakes of oxalic acid can cause diarrhoea, gastroenteritis and renal damage. Oxalates also react with proteins to form complexes which have an inhibitory effect on peptic digestion in animals	false	false	*NULL*	The oxalate values obtained for the selected values lie below 2%, thus suggesting that oxalate concentration in these plants are within the safe range.	8,924
236	Gum-arabic	Whole	Phytic acid	Although phosphorus is present in phytic acid, it has a low bio-availability because phytate can form complexes with a variety of minerals, including calcium, copper, cobalt, ion, magnesium, manganese, selenium and zinc, thus reducing the availability of these nutrients in animals. Phytic acid can also form complexes with basic residues of proteins thereby interfering with the activity of endogenous enzymes and associated metabolic pathways.	false	false	*NULL*	*NULL*	8,924
237	Gum-arabic	Whole	Tannins	Tannins form complexes with proteins and carbohydrates in feed, it also complexes with digestive enzymes and as a result nutrient digestibility is depressed.	false	false	*NULL*	At lower concentration levels, tannins have been reported to have two general traits that are relevant to grazing ruminants. They are prevention of bloat and suppression of internal parasites.	8,924

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
238	Carob	Pod (fresh)	Trypsin inhibitor	Protease inhibitors decrease the performance of these enzymes, having as a result lower protein digestibility.	false	false	*NULL*	The anti-nutritional composition of the carob products was analyzed in terms of trypsin inhibitory factor, which measure protease inhibitors. Noted that, the trypsin inhibitory factor was lower in the pulp. The in vitro protein digestibility was also higher in the pulp. The seeds display the highest amount of the sum of anti-nutritional factors (proteins inhibitor and phytic acid).	8,925
239	Carob	Pod (fresh)	Phytic acid	Phytic acid content has strong affinity for binding ions such as calcium and zinc, avoiding its absorption in the intestine and preventing various metabolic processes from being adversely affected.	false	false	*NULL*	The phytic acid content was lower in the pulp than in the seeds and leaves. Leaving aside the leaves, the nutrient power of the carob tree is concentrated in the pulp. Noted that, the seeds display the highest amount of the sum of anti-nutritional factors (proteins inhibitor and phytic acid).	8,925
240	Mastic Tree	Whole (without root)	Tannin	This study shows that under tannin-rich feeding regimen even dry goats receiving supplements can experience a negative protein balance.	false	false	Polyethylene glycol (PEG) is an inert and unabsorbed molecule that can form a stable complex with tannins, preventing the binding between tannins and proteins.	*NULL*	8,926
241	Swamp Taro	Leaf	Oxalate	Studies show that eating large quantities of a high oxalate containing foodmay contribute to the formation of kidney stones in susceptible people.	false	false	Boiling taro leads to leaching of water soluble oxalates into the cooking water and some loss of soluble oxalates also occurred during baking	*NULL*	8,927
242	Swamp Taro	Leaf	Calcium oxalate	Some of the reports of calcium oxalate crystals irritating the mouth when eaten	false	false	*NULL*	Irritating the mouth when eaten	8,927
243	Yautia	Tuber	Cyanide	*NULL*	false	false	*NULL*	*NULL*	8,929
244	Yautia	Tuber	Oxalate	*NULL*	false	false	*NULL*	*NULL*	8,929
245	Yautia	Tuber	Tannin	*NULL*	false	false	*NULL*	*NULL*	8,929
246	Yautia	Tuber	Phytate	*NULL*	false	false	*NULL*	*NULL*	8,929

Antinutrient and Toxicity ID	Crop ID	Part	Reported Factor	Effect	Cause Toxicity	Cause Allergic Reaction	Reduction Method	Notes	Metadata Id
247	Fava (Faba) Bean	Seed	Contains antinutritional factors such as vicine and convicine, which can lead to a condition called favism in susceptible individuals. These compounds can cause oxidative stress in people with G6PD de	Vicine and convicine in faba beans can cause oxidative stress in individuals with glucose-6-phosphate dehydrogenase (G6PD) deficiency. This can lead to a condition called favism, characterized by symptoms such as: Hemolytic anemia Fatigue Jaundice Dark urine It's important for people with G6PD deficiency to avoid consuming faba beans.	false	false	*NULL*	*NULL*	9,791