
Observed patients in the dukedom of Modena who suffered from a weakness of the lower extremities as consequence of eating 'legumi', especially 'ervo'. [D.E.: Is 'ervo' L. cicera or V. ervilia?].

Source: ref ex Schuchardt (1885-87)

Lathyrism Italy/Italy lathyrism/Lathyrus/Vicia ervilia toxicity/History lathyrism/Lathyrus cicera toxicity/Lathyrus cicera History/Italy/Lathyrism/Lathyrus L. cicera/Lathyrus toxicity/Toxicity L. cicera/Toxicity/Vicia/Vicia ervilia.


Source: ref ex Selye (1957); Jiménez Díaz (1941)

Lathyrism Italy/Italy lathyrism/Lathyrus cicera/Lathyrism history/History/Italy/Lathyrism.


Consumption of L. cicera seeds caused stiffness of feet (joints) in men.

Source: ref ex Schuchardt (1885-87); Moya et al 1967

Lathyrism history Germany/Lathyrus/Lathyrus cicera toxicity/Toxicity L. cicera/Lathyrus cicera/Germany/History/Lathyrism/Lathyrus cicera/Lathyrus L. cicera/Lathyrus toxicity/Humans/Seed/Toxicity.


L. cicera or L. sativus consumption led to leg paralysis; (translated from French into German by Hirzel, 1780).

Source: ref ex Schuchardt (1885-87)

Lathyrus toxicity/Lathyrism history/Lathyrus sativus/Lathyrus cicera/Germany/History/Human consumption/Lathyrism/Lathyrism Germany/Lathyrus L. cicera/Lathyrus toxicity/Humans/Paralysis/Toxicity L. cicera/Toxicity L. sativus/Toxicity/Translation.


Linguet and Tissot.

Source: ref ex Selye (1957)

Lathyrus bread grain/Bread/Lathyrus Germany.


Source: ref ex Schuchardt (1885-87)

Lathyrus cicera toxicity/Lathyrism L. cicera/Lathyrus cicera History/History/Lathyrus cicera/Lathyrus toxicity/Toxicity L. cicera Toxicity.


Lathyrism in Toskana in 1784. Bread 1 part cereal 2 parts Lathyrus sativus imported from Tunisia caused paralysis after three months consumption. Plants were identified after growing them out in the botanical garden.

Source: ref ex Schuchardt (1885-87)

Lathyrus sativus toxicity/Lathyrism history/Italy Toscana lathyrism/Lathyrism Italy Toscana/Lathyrus sativus/Bread/Dhal/History/Italy Italy L. sativus/Italy lathyrism/Lathyrism Italy/Lathyrus toxicity/North Africa/Africa North/Paralysis/Toxicity L. sativus Toxicity/Tunisia.


Deslandes (Thiebaud de Bernard). Reported similar cases as Vilmorin (1847) from the Department de la Sarthe, France in the Journal des Maires [DE??]. Also see Heusinger (1821).

Source: ref ex Schuchardt (1885-87) 1885-87

Vicia monantha toxicity/Vicia toxicity/Lathyrus toxicity/Lathyrism/France/Vicia/Canavanine/Lathyrus France/Toxicity/Vicia monantha Vilmorin.


Source: ref ex Schuchardt (1885-87)
Lathyrus/ Lathyrism/ Vicia monantha toxicity/ France/ Vicia/ Canavanine/ Vicia monantha/ Toxicity V. monantha/ Fungi/ Mycology
Lathyrism France/ Lathyrus toxicity/ Microbiology/ Rust/ Toxicity.

Source: ref ex Selye (1957), read abs only
Lathyrism.

Source: ref ex Selye (1957)
Lathyrism Ceylon/ Ceylon lathyrism/ Ceylon/ Lathyrism.

vol. 1 Sangor, India, 1833, several lathyrism cases following 3 years of poor cereal harvests, famine and L. sativus being major part of the diet as a consequence.
Source: ref ex Schuchardt (1885-87)/Selye (1957)
Famine India/ Lathyrism India/ History lathyrism/ Lathyrism history/ India lathyrism/ Famine/ Malnutrition/ Lathyrus sativus/ Diet/ History India/ India Dietary/ Dietary/ India L. sativus/ India malnutrition/ Lathyrism.

Desbauts (1840). **Bulletin De Chirurgie.** Refers to animal feeding experiments with Lathyrus seeds carried out by Cottereau and Caignon. These were unable to produce lathyrism symptoms in dogs, rabbits and hens.
Source: ref ex Schuchardt (1885-87)
Rodents/ Canine bioassay/ Poultry bioassay/ Bioassay poultry/ Bioassay rodents/ Bioassay canine/ Lathyrus sp. toxicity/ Lathyrism/ Bioassay Agriculture/ Lathyrism symptoms/ Animal feeding/ Dogs/ Feeding/ Lathyrism animals/ Lathyrism Bioassay/ Lathyrus sp./ Lathyrus toxicity Poultry/ Rabbits/ Seed/ Symptoms lathyrism/ Toxicity rodents bioassay/ Toxicity.

Tribunal de Niort (1840). **Journal D'Agriculture Pratique.** 4:91-
The effects of consuming bread made from Lathyrus cicera admixed with wheat flour are by judgement of the tribunal authentically constated [authentisch constatirt].
Source: ref ex Schuchardt (1885-87)
Lathyrus cicera bread toxicity/ France L. cicera toxicity/ Lathyrism France/ Lathyrus cicera/ Agriculture/ Bread/ Flour/ France/ Lathyrism Lathyrus L. cicera/ Lathyrus toxicity/ Toxicity L. cicera/ Toxicity/ Triticum aestivum.

Chevallier (1841). **Le lathyrisme.** Annales D'Hygiène 26:126
Source: ref ex Selye (1957)
Lathyrism.

30 cases of Lathyrism and malnutrition following the ingestion of Lathyrus.
Source: ref ex Schuchardt (1885-87)
Lathyrism Italy/ Italy lathyrism/ History lathyrism/ Lathyrism history/ Famine/ Malnutrition/ History/ Italy/ Lathyrism.

Vilmorin (1847). **Note sur le danger de l'emploi dans le pain de la graine de jarosse.** Annales D'Hygiène Publ[ique] 37 (74):467-469.
A case of Lathyrism in a 2o year old young man was observed in 1819 in the region of Bourgueil (Indre-et-Loire), France. Other cases of lathyrism were known to have occurred in the region.
Source: ref ex Schuchardt (1885-87)
Lathyrus/ Lathyrism history/ Lathyrism France/ France lathyrism/ Lathyrism epidemiology/ Lathyrus sativus/ Epidemiology lathyrism/ France History/ Lathyrism/ Humans/ Vilmorin.

Source: ref ex Jiménez Díaz (1941)
Lathyrism India/ India lathyrism/ India/ Lathyrism.

Lathyrism. All cases occurred during the rainy season. More men than women and more poor than well off people were affected. Swampy ground appears to increase the toxicity of Lathyrus sativus seeds. This has also been reported by Laudon for L. cicera. Plants grown on [waterlogged] (sehr feucht: very moist) soils are more dangerous than those grown on dry ground.
Source: ref ex Schuchardt (1885-87)


Loudon (1880). **Loudon's Encyclopedia of plants.** London: Longmann's, Green & Co.
p. 620 Lathyrus. A name employed by Theophrastus to designate a leguminous plant. It is said by his commentator Bodaeus a Stapel, to have been derived from (la) an augmentative particle , and (thyros), any thing which is exciting; and to have been applied to this plant in consequence of certain aphrodisiacal qualities ascribed to it. L. sativus , Gesse fr. is frequently sown in Switzerland for soiling horses. In several parts of the continent, a white light pleasant bread is made from the flour of this pulse, but it produced such dreaded effects in the last century that the use of it was forbid by an edict of George, Duke of Württemberg in 1671; and this not being observed was enforced by two other edicts under his successor Leopold, in 1706 and 1714 . Mixed with wheat flour in half the quantity, it makes a very good bread, that appears to be harmless. But bread made with this flour only has brought on a most surprising rigidity of the limbs in those who have used it for continuance; insomuch that the exterior muscles could not by any means be reduced, or have their natural action restored. These symptoms usually appeared on a sudden, without any previous pain; but sometimes they were preceded by a weakness and disagreeable sensation about the knees. Baths, both hot and cold, fomentations and ointments of various kinds have been tried without effect; insomuch that it is regarded as incurable, and neither very painful nor fatal, those who are seized with it usually submit to it with patience. Swine fattened with this meal lost the use of their limbs, but grew fat lying on the ground. A horse fed some months on the dried herb, was said to have its legs perfectly rigid. Kine [cattle] are reported to grow lean on it [cf. Alden and Geytenbeek, 1984], but sheep are not affected. Pigeons, especially young ones, lose the power of walking by feeding on the seed. Poultry will not readily touch it, but geese eat it without apparent damage. In some parts of Switzerland, cattle feed on the herb without harm. It would be worth inquiring, therefore, whether the soil may not contribute something to the ill qualities of the plant: and it is remarked that the seed from a strong, fat, moist soil, is much more deleterious than from a light one. (Duvernoy). Fabbrioni, from Florence, in 1786, says, that the government there has cautioned the peasants against the use of Lathyrus sativus; swine having lost the use of their limbs, and become pitiable monsters by being fed on this pulse exclusively. The peasants, however, eat it boiled, or mixed with wheat flour, in the quantity of one-fourth, without any harm. The poisonous Lathyrus from Barbary, is L. semine punctato of Casp. Bauhin, and seems to be only a variety, for in the crops of L. sativus in Italy, they find black seeds striped with white, as in the African seed. Fabbrioni suspects it to be a mule between L. sativus and L. cica, for the flower and seed partake of the characters of both; having a black seed marked with white; and a white banner with a red keel to the corolla. (Fabbrioni's Letters in MSS. Banks). L. odoratus is one of our most esteemed border annuals, and is extensively grown in pots for decorating chambers and windows. L. tingitanus, articulatus, and annuus are also sown as border annually. L. tuberosus produces tubers on the roots, like those of the earth nut (Bunium bulbocastanum); these are sold in the markets of Holland, like those of Orobus tuberosus and Trapa natans, and their flavour is highly esteemed. L. latifolius is a very showy plant for shrubberies, arbors and trellis work, and yields a great quantity both of fodder and seeds, which some botanists have suggested might be applied to agricultural purposes. Ochrus(okros), yellow, in allusion to the colour of its flowers, plant with yellow flowers, native of hedges in the south of Europe.

Source: reprintDE

Pigs/ Pigeons/ Geese/ Human consumption/ Lathyrus/ Lathyrism history/ Vicia/ Pismum/ Hard to cook/ Grain legumes/ Theophrastus Aphrodisiac/ Poultry/ Switzerland/ Algeria/ Lathyrus semine punctato/ Lathyrus articulatus/ Lathyrus annuus/ Lathyrus tuberosus/ Lathyrus latifolius/ Pismum maritimum/ Vicia sylvatica/ Vicia cracca/ Vicia sativa/ Vicia narbonensis/ Vicia sarratofila/ Cultivation/ Germany/ Vicia sepium/ Vicia faba/ Environmental variation toxicity/ Ruminants/ Horticuture/ Forage/ Soil/ Lathyrus sativus/ Lathyrus cicera/ Lathyrus ochrus Lathyrus tingitanus/ Lathyrus odoratus/ Cattle/ Horses/ Agriculture/ Lathyrism symptoms/ Agriculture history/ Bauhin/ Bees/ Bovine feed Bream/ Bread/ Cattle feed/ Cold/ Colour/ Corolla/ Entomology/ Environment/ Europe/ Fats/ Feed/ Feeding/ Feed ruminants/ Feed Vicia sativa Feed Lathyrus sativus/ Feed Lathyrus cica/ Feed Lathyrus ochrus/ Feed Lathyrus tingitanus/ Flavour/ Flour/ Flowers/ Fodder/ Pulses/ History Horse diseases/ Horses lathyrism/ Horticuture L. odoratus/ Italy/ Italy L. sativus/ Italy lathyrism/ Lathyrism/ Lathyrism Algieria/ Lathyrism Germany/ Lathyrism horses/ Lathyrism Italy/ Lathyrism L. cica/ Lathyrus toxicity/ Humans/ Intercropping/ Mixtures crops/ Muscles/ North Africa/ Africa North/ Ornamentals/ Ornamentals L. odoratus/ Orobus/ Pigs/ Roots/ Ruminant feed/ Ruminants L. sativus/ Seed/ Sensation Sheep/ Sheep feed/ Symptoms lathyrism/ Toxicity L. cica/ Toxicity L. latifolius/ Toxicity L. odoratus/ Toxicity L. sativus/ Toxicity L. sativus poultry/ Toxicity Triticum aestivum/ reprint.

Brunelli, B. (1880a). **Due casi di paraplegia spastica.** Boll D R Accad Med Di Roma 6 (8):3-9. Fed rabbits with the flour but these never lived long enough to develop any lesions.

Source: ref ex Schuchardt (1885-87)
Lathyrus cicera animal experiments/ Lathyrus cicera toxicity/ Bioassay rabbits/ Rabbit bioassay L. cicera/ Lathyrism Italy/ Italy lathyrism Rodents/ Lathyrus cicera/ Bioassay/ Flour/ Italy/ Lathyrism/ Lathyrism animals/ Lathyrism Bioassay/ Lathyrism L. cicera/ Lathyrus toxicity Paraplegia/ Rabbis/ Toxicity L. cicera/ Toxicity rodents bioassay/ Toxicity.

Brunelli, B. (1880b). Due casi di paraplegia spastica. Trans 7th Internat Med Congr. London 2:45
Source: ref ex Selye (1957)
Lathyrism Italy/ Italy lathyrism/ Italy/ Lathyrism/ Paraplegia.

Brounelli (1881). Sur une cause peu connue de tubes dorsalis spasmodique. Trans 7th Internat Med Congr. London 1
Source: ref ex Jiménez Díaz (1941)
Lathyrism/ Lathyrism history/ History.

Interesting presentation about Lathyrism at the Medical School Algiers (3. 7.1882). Competent treatment of the botany and clinical details. Animal experiments with extracts of Lathyrus cicera. Frogs and small birds died after two hours to 2 days. Paralysis of the legs was observed. Bourlier tends to think that lathyrism is caused by a disturbance of the posterior strands, in the posterior white and grey matter (in der weissen und grauen Substanz) and of a part of the side strands (Seitensträngen) of the spine, analogous to the Tabes dorsalis spasmodyca of Erb and Charcot.
Source: ref ex Selye (1957); Schuchardt (1885-87); Jiménez Díaz (1941)

Gives historical information and observations about animals (e.g. horses) being affected by Lathyrus consumption. Horses are affected through paralysis of the left nervus laryngeus.
Source: ref ex Schuchardt (1885-87)

Bouchardt and Bourlier (1883). Progres Med 65
Source: ref ex Jiménez Díaz (1941)
Lathyrism history/ History.

Source: ref ex Selye (1957)
Lathyrism.

Source: ref ex Schuchardt (1885-87)
Lathyrism Italy/ Italy lathyrism/ Italy/ Lathyrism.

Animal poisonings caused by gesse (Lathyrus sativus).
Source: ref ex Schuchardt (1885-87)
Lathyrus sativus toxicity animals/ Lathyrism animals/ Animals L. sativus toxicity/ Toxicity L. sativus animals/ Lathyrus sativus/ Lathyrism Lathyrus toxicity/ Toxicity L. sativus/ Toxicity.
Source: ref ex Selye (1957)
Lathyrism.

Source: ref ex Jiménez Díaz (1941)

Source: ref ex Selye (1957)

Subcutaneous injections of Lathyrus cicera extract did not produce the characteristic symptoms of lathyris.
Source: reprintDE

Source: ref ex Schuchardt (1885-87)

Source: ref ex Schuchardt (1885-87)

Source: ref ex Schuchardt (1885-87)

Source: ref ex Schuchardt (1885-87)

Source: ref ex Schuchardt (1885-87)

De Renzi, E. (1884). *Paralisi spinale spasmodico e latirismo*. Rivista Clinica D. Universita Di Napoli **V.**:49-
Source: ref ex Schuchardt (1885-87)

Source: ref ex Schuchardt (1885-87)

A review of lathyris. Several references to lathyrism in animals.
Source: reprintDE


Source: ref ex Selye (1957); Grmek (1980)

Lathyrism history/History/Lathyrism/Hippocrates.

Chabline and Semidoff (1892). Rev Med Russ
Source: ref ex Jiménez Díaz (1941)

Lathyrism Russia/Russia lathyrism/Lathyrism/Russia.


Gives a full details of a Lathyrism epidemic in Kabylia.
Source: ref ex Stockman (1931); Moya et al 1967

Lathyrism epidemiology Kabylia Algeria/Algeria lathyrism/Lathyrism Algeria/Vicia ervilia/Lathyrism/Algeria/Epidemiology lathyrism/Lathyrism epidemiology/North Africa/Africa North/Vicia.

Schabalin (1893). _Lathyrism in Russia_. Med. Obzor 4
Source: ref ex Selye (1957)

Lathyrism Russia/Russia lathyrism/Lathyrism/Russia.

Semidalov, V. (1893). _O Lathyrizme [On lathyrism]_. Medkoe. Obozr 39:733-
Source: ref ex Tiwari (1994)

Lathyrism/Lathyrism history/History.

Abson (1894). _Lathyrism_. Veterinary Record:159
Source: ref ex Selye (1957) (read in abstract form only)

Lathyrism/Lathyrism veterinary.


Alexis Yakovlievich Kozhevnikov, Russian neurologist and psychiatrist, born 1836, Ryazan; died January 10 23, 1902, Moscow.
The name has also been spelled Kochewnikow, Koschewnikoff, Koschewnikow, Kojewnikoff.
See also his publication: Latyrysm - bolezna,obuslovennaia upotrebleniem v pyscu goroha lathyurus.Sankt Peterburg, 1894.
Source: ref ex Selye (1957) [Dwivedi]

Lathyrism Russia/Russia lathyrism/Lathyrism/Russia.

Slidders (1894). _Lathyrism_. Veterinary Record:50
Source: ref ex Selye (1957)

Animal poisonings Lathyrus spp/Lathyrism animals/Animals lathyrism/Lathyrism/Lathyrism veterinary/Lathyrus spp.

Grandjean, M. (1895). _Paralysie ataxique observee chez les kabyles a la suite de l’ingestion d’une variete de gesse (Lathyrus clymenum L., appelee en Kabylie: Habech)_.

Algeria L. clymenum toxicity/Lathyrus clymenum toxicity/Lathyrism Algeria/Lathyrism history/Lathyrus clymenum/Algeria/History Lathyrism/Lathyrism L. clymenum/Lathyrus toxicity/North Africa/Africa North/Toxicity.


Source: ref ex Selye (1957); Jiménez Díaz (1941); Moya et al 1967

Lathyrism Italy/Italy lathyrism/Lathyrism history/History/Italy/Lathyrism.

Source: ref ex Jiménez Díaz (1941)

Lathyrism history/History/Lathyrism.

Mirto (1897). _Lathyrism_. Il Pisano 18:109-
Source: ref ex Selye (1957)

Lathyrism Italy/Italy lathyrism/Lathyrism history/History/Italy/Lathyrism.

Mirto (1898). _Sulla obtenzione degli elementi nervosi nel latirismo sperimentale_. Giron. Di Med. Legal 3
Source: ref ex Jiménez Díaz (1941)

Lathyrism history/History/Lathyrism.

Source: ref ex Selye (1957)

Lathyrism Algeria/Algeria lathyrism/Algeria/Lathyrism/Lathyrism etiology/North Africa/Africa North.
Lathyrism India/ India lathyrism/ India/ Lathyrism.

Source: ref ex Selye (1957)  
Lathyrism Russia/ Russia lathyrism/ Lathyrism/ Russia.

Source: ref ex Jiménez Díaz (1941)  
Lathyrism Algeria/ Algeria lathyrism/ Algeria/ Lathyrism/ Lathyrism etiology/ North Africa/ Africa North.

Source: reprintDE  
Lathyrism history/ Lathyrus spp toxicity/ Vicia sativa/ Vicia ervilia toxicity/ History/ Lathyrism/ Lathyrus spp/ Lathyrus toxicity/ Toxicity Lathyrus spp/ Toxicity/ Vicia/ Vicia ervilia/ reprint.

Source: ref ex Selye (1957)  
Lathyrism review/ Lathyrism/ Review.

Spirtoff (1903). *Lathyrism in Russia*. Obzor. Psych 5:675-.  
Spirtoff (1903) Lathyrism in Russia. Obosrenije Psych 5:675.  
Source: ref ex Selye (1957)  
Lathyrism Russia/ Russia lathyrism/ Lathyrism/ Russia.

Lathyrism treatment/ Treatment lathyrism.

Source: ref ex Selye (1957)  
Lathyrism.

He deals in greater detail with lathyrism, quoting a fair section from Kobert (1906) on the historical aspects and mentions that a 100 species of Lathyrus are distributed over North and South America. L. sylvestris is considered poisonous in its native home, the Carpathian mountains, but the cultivated type has been bred for lower levels of toxins [D.E. the seed contains Diamino butyric acid, DABA]. In the western U.S. the prairie vetchlings L. ornatus, L. polymorphus, and the marsh vetchling L. palustris are considered valuable forage plants, the latter forming an important part of the hay and adding materially to the feeding value. L. venosus and L. ochroleucus occurring in similar localities are much less valuable.  
Source: reprintDE  
Vicia/ Legume toxicity/ Review/ Vicium/ Toxicity/ Lathyrism/ Lathyrus toxicity/ America North poisonous plants/ Lathyrus ochroleucus Lathyrus venosus/ Lathyrus ornatus/ Lathyrus polymorphus/ Lathyrus palustris/ Lathyrus sylvestris/ Ruminants/ Antinutritional factors/ Forage DABA/ Cattle/ Hay/ Agriculture/ America/ Feeding/ Feed ruminants/ Feed Lathyrus ochrus/ Feed Lathyrus sylvestris/ History/ Lathyrism history/ Lathyrism review/ Lathyrus ochrus/ Lathyrus sylvestris/ North America/ Pigs/ Poisonous plants/ Ruminant feed/ Seed/ South America Toxicity L. sylvestris/ Toxic/ reprint.

Fumaroli and Zanelli (1914). *Anatomische experimentelle Forschungen ueber den Lathyrismus*. Archiv Fuer Psychiatrie Und Nervenkrankheiten 54 (2)  
Source: ref ex Jiménez Díaz (1941)  
Lathyrism anatomy/ Anatomy lathyrism/ Anatomy plant/ Lathyrism.

Source: reprintDE  
Lathyrism/ Lathyrus sativus toxicity/ Lathyrus sativus/ Lathyrus toxicity/ Humans/ Toxicity L. sativus/ Toxicity/ reprint.

Alternative citation [different year] Lathyrism in relation to the use of caley peas (Lathyrus hirsutus) for livestock.
Source: ref ex Selye (1957)
Lathyrism review/Alabama/Alabama/Lathyrism/Reports/Review.

Anderson et al. : M. suggested that the toxicity of L. sativus was due to a protein which produces H2S when the crushed seed was allowed to undergo fermentation. Other species with H2S evolution during fermentation. L. odoratus, Phaseolus vulgaris, P. sativum, several species of Faba and Vicia, Cicer arietinum, Medicago sativa, and Lupinus albus.
Source: reprint
Sulfur/ Vicia/ Lathyrus/ ß-elimination/ Toxicity/ Lathyrus sativus/ Lathyrus odoratus/ Medicago sativa/ Cicer arietinum/ Evolution Fermentation/ Lathyrism/ Lathyrus toxicity/ Lupinus albus/ Medicago/ Phaseolus vulgaris/ Pisum sativum/ Protein/ Seed/ Toxicity L. odoratus Toxicity L. sativus/ reprint.

Source: ref ex Selye (1957)
Lathyrism India/ India lathyrism/ India/ Lathyrism/ Humans.

Source: ref ex Roy (pers. comm.)
Lathyrism India/ India lathyrism/ India/ Lathyrism/ Humans.

Jiménez Díaz, C. (1941) cites Vol or issue 11.
Source: ref ex Selye (1957)
Lathyrism India/ India lathyrism/ Amines L sativus/ Lathyrus sativus amines/ Amines/ Lathyrus sativus/ India/ India L. sativus/ Khesari Lathyrism.

Source: ref ex Selye (1957)
Lathyrus clymenum toxicity/ Lathyrism L. clymenum/ Lathyrus clymenum/ Lathyrism/ Lathyrus toxicity/ Toxicity.

Source: MWP_1992
Horse diseases/ Horses/ Horse poisoning L. sativus/ Horses lathyrism/ Lathyrism animals/ Lathyrism horses/ Feed/ Feed L. sativus/ Lathyrus sativus/ Lathyrus sativus animal feeding/ Lathyrus sativus India.

Anderson et al. 1925 V. sativa var. angustifolia, a weed, known in Bihar as akta. Lathyrus sphoericus Retz., known as langra khesari, near Barail V. hirsuta Koch, known as misya and L. aphaca L., known as pipra.
Evident unpalatability was noted with these weeds., daily food intake remained low, on average around the starvation level. Evolution of HCN from ordinary khesari grain (with other seeds admixed) was noted during experiments which aimed at repeating Mirande (1921) results on H2S evolution, which could not be confirmed. Review of vicine and vicianine(p 620). Ritthausen (1870, 1873, 1876, 1881, 1884, 1889) showed in a series of important papers that the seeds of Vicia sativa contained a nitrogenous glucoside to which he gave the name vicine and which was at first considered to be an alkaloid. In a number of investigations by Schulze & Trier (1910), Schulze (1911), Winterstein (1919), Johnson & Johns (1914), Fischer (1914), and more especially Levene (1914) and Levene & Senior (1916) the structure of divicine was studied. Immature seeds seem to contain the highest amount of vicine (Anderson et al. 1925). Experiments with ducks. Animals on germinated grain did not thrive as well as the others. All animals fed diets containing any quantity of V. sativa died within 6-25 days. A negative effect on feed intake was also noted for the V. sativa diets, but starvation was ruled out by a controlled starvation experiment. 50% V. sativa L. var. angustifolia induced poisoning in ducks and monkeys. Causal agent apparently not ascribed to any particular toxin. Symptoms: Ducks exhibited ataxy, walking in circles, convulsions, paresis, a kind of writhing contortion of the whole
body and death. Observation carried out over a period of 13-125 days. Post mortem: in almost every case examined cerebral congestion was a very striking post mortem feature. Nothing remarkable about the abdominal or thoracic organs, except for an excess of pericardial fluid. On removing the skin of the head there was oedema and indication of haemorrhage over the surface of the skull. The brain superficially was intensely congested all over, pink in colour, and covered with dilated vessels. It was soft and difficult to remove. There was much hyperaemia about the cerebellum, medulla and upper cord, and blood welled up as soon as this part was laid open. Monkeys were less active, crouched in cages unable to sit up and constantly grinding their teeth. They exhibited fibrillary twitchings of the muscles of arms, legs and flanks, as well as violent convulsions of the whole body lasting 5-10 minutes. They also yawned frequently, were hyperexcitable and showed symptoms of paralysis. Quite a bit of detail about the symptoms of monkeys feeding on 15, 30 and 50% V. sativa diets, some of it in dhal form. These symptoms are different from those typical of lathyrism.

Source: reprintDE

Lathyrism/ Lathyrus sativus toxicity/ Oedema/ Haemorrhage/ Brain haemorrhage/ Vicia sativa/ Vicia sativa toxicity/ Vicia sativa ssp nigra toxicity/ Bioassay monkeys/ Bioassay ducks/ Ducks/ Primates/ Symptoms V sativa toxicity/ Neurology/ Lathyrus sativus/ Bioassay/ Agriculture Bihar/ Bioassay L. sativus/ Lathyrus sativus bioassay/ Glycosides/ Glucosides/ Lathyrism symptoms/ Blood/ Brain/ Cerebellum/ Colour Convulsions/ Cyanides/ Dhal/ Diet/ Dietary intake/ Evolution/ Feed/ Feeding/ Feed intake/ Feed Vicia sativa/ Feed Lathyrus sativus/ Food Glucose/ HCN/ Immaturity/ India/ India Dietary/ Dietary/ India L. sativus/ India lathyrism/ India weed/ Intake/ Khesari/ Lathyrism animals Lathyrism Bioassay/ Lathyrism India/ Lathyrism review/ Lathyrus aphaaca/ Lathyrus aphaaca weed/ Lathyrus toxicity/ Medulla/ Muscles Paralysis/ Poultry/ Review/ Seed/ Skin/ Starvation/ Symptoms lathyrism/ Toxicity L. sativus/ Toxicity L. sativus poultry/ Toxicity/ Toxin/ Vicia Vicia hisraca/ Vicine/ Weed/ Weed L. aphaaca/ Weed V. sativa/ reprint.


Source: reprintDE

Lathyrus/ Toxin/ Lathyrism/ Lathyrism veterinary/ reprint.


Source: ref ex Selye (1957)

Lathyrism History/ Russia lathyrism/ Lathyrism/ Pathology/ Anatomy.


Source: NAL CALL NO: 41.2 M29 ex. USDA NAL catalogue/telnet

Lathyrism History/ Lathyrism History/ History/ Lathyrism/ USDA.


Source: ref ex Steyn (1933)

Lathyrism India/ India lathyrism/ India/ Lathyrism.


Source: ref ex Dwivedi (1989)

Lathyrism India/ India lathyrism/ Lathyrus sativus/ India/ India L. sativus/ Lathyrism/ Reports.


Source: ref ex Selye (1957)

Lathyrism India/ India lathyrism/ India/ Lathyrism.


This is a detailed paper which describes the symptoms and etiology of lathyrism in horses and mules. It also reviews the contradictory theories regarding lathyrism. The symptoms in equines differ from those observed in humans. Cornage = roaring ie. Constriction of the larynx (dyspnoea) in severe cases followed by asphyxiation are the characteristic feature. Mules are more susceptible than horses. The onset of symptoms can be delayed by two to three months following the cessation of feeding on Lathyrus sativus.

Gaget, Léger, Marcenac, Tasset observed walking difficulties without accompanying hoaring Verrier reported walking difficulties accompanied with hoaring Delafond, Barthélemy, Dard père, Maleval observed roaring without accompanying walking difficulties.

Citations are not given in this paper.

Source: reprintDE_2001

Lathyrism/ Lathyrism horses/ Horses lathyrism/ Lathyrism mules/ Mules lathyrism.
Source: ref ex Selye (1957) (or Dwivedi)
L athyrism India/ India lathyrism/ Lathyrism epidemiology/ Distribution plants/ Epidemiology lathyrism/ Geography/ India/ Lathyrism.

Clear analysis of the neurological symptoms of Lathyrism.
Lathyrism etiology/ Lathyrism India/ India lathyrism/ Lathyrism symptoms/ India/ Lathyrism/ Surveys/ Symptoms lathyrism.

Source: ref ex Selye (1957)
Lathyrism India/ India lathyrism/ India/ Lathyrism.

Source: reprintDE
Lathyrism/ Lathyrus sativus toxicity/ Lathyrus toxicity/ Toxicity L. sativus/ Toxicity/ reprint.

Source: ref ex Steyn (1933)
Lathyrus toxicity symptoms/ Vicia toxicity/ Lathyrism histology/ Lathyrism anatomy/ Lathyrism symptoms/ Anatomy plant/ Histology
Histology lathyrism/ Lathyrus toxicity/ Symptoms lathyrism/ Toxicity/ Vicia.

Source: ref ex Selye (1957)
India lathyrism/ Lathyrism India/ Vicia sativa toxicity/ Lathyrus sativus toxicity/ Bioassays L. sativus/ Bioassays Vicia sativa/ Lathyrus sativus Feeding/ India/ India L. sativus/ Lathyrism/ Lathyrism Bioassay/ Lathyrus toxicity/ Toxicity L. sativus/ Toxicity/ Vicia/ Vicia sativa.

Amongst the grain legumes grown since antiquity for food and feed, bitter vetch (Vicia ervilia) and the vetchling (Lathyrus sativus, L. ciceria, L. clymenum) are suspicious for their potential toxicity. Lathyrus has been noted for its toxicity to farm animals and humans especially since the 17th century. Bitter vetch is of limited importance as a cattle food. Lathyrus is extensively grown in France and Southern Europe, mainly as a fodder and to some extent also for human consumption. It is eaten by peasants as a pulse in cooked form and also, mixed with wheat flour, as bread. Therefore in times of scarcity and when the prices for cereals were high, its excessive use caused local outbreaks of poisoning. The grain (whole, ground, cooked in various ways) is the staple diet of large sections of the poorer classes in India and Kabylia (Algeria) Thus, during famines as a result of its increased consumption, pandemics have arisen. In India large sections of the agricultural population subsist on diets containing Lathyrus (khesari, teora, matra). In North-West and Central India, 6% of the population are affected by paralysis of the lower limbs, in the worst affected villages 10%-+ of the male adults are affected. Cantani (Naples, 1873) named this disease, which was long well known to physicians in affected areas, Lathyrism. In some Indian jails 4-6 ounces/person/day are fed without ill consequences (Buchanan). When used as the sole diet paralysis occurs within 4-8 weeks (Grandjean, etc.). The grain varies in toxicity, and toxicity seems to depend on the amount eaten and to some extent the individual's susceptibility. Men are more affected than women (10-12 male:1 female), boys more than girls. Slight cases manifest themselves as mild motor paralysis and spasticity in the lower limbs, which can disappear again. In more severe cases paralysis appears suddenly and can affect the bladder, rectum, genitals, with pains around the waist, lightning pains, loss of sensation, numbness, cramps, prickling. All symptoms clear up again, except for the paralysis which is permanent and can vary in its degree of severity. Chevallier (France, 1841) mentions somnolence (D.E.: inclination to sleep, sleepiness, drowsiness cf. with V. sativa and pigs). Desparanches (extensive epidemic around Blois, ca. 1829) noted that convulsive movements of the limbs were the earliest symptoms. McCombie Young (Ind. J. Med. Res., 1927,
15) gave a very detailed description of the symptoms. Proust (1883) Bull. Acad. Méd. 12, 829 gives full details of an epidemic in Kabylia. No post-mortem information was available (1931). With regard to the utilisation of the whole plant and its grain as animal fodder, 20% of the grain in diets is well known to be innocuous, except for horses which are particularly susceptible. On 100% grain diets, herbivores and pigs thrive and remain well, although they are apt to develop a weakness of their hindlegs (D.E. cf. Loudon, 1880). Pigs grazing on Lathyrus have not infrequently died of acute poisoning, and sheep and cattle have also died acutely. Ducks, geese and peacocks are readily poisoned by the grain, but pigeons, hens and partridges do well on them although perhaps they are not quite immune. Experiments with monkeys and frogs on various legumes, including Lens culinaris, Glycine max, L. sativus, L. cicer, V. ervilia are described and it is curious that nervous symptoms were observed in a monkey (3.5 kg bodyweight) feeding on a diet consisting of cooked Lens culinaris and orange juice (120g/day) (some milk and fruit were given in addition); it ate well, gained weight and died after 52 days after showing nervous symptoms. This sample of lentils seemed to have been more poisonous than L. sativus and degenerative changes in the brain and spinal cord were similar to those observed with Lathyrism. The Dukes of Württemberg tried to ban Lathyrus from their domains. In India and Algeria similar attempts were made and proved unpopular and ineffective. Based on the assumption that Lathyrus is probably not more toxic than other grain legumes, Stockman suggests that a more varied and better balanced diet is the true preventive. Failing this, soaking the decorticated peas or the meal overnight in twice their weight of soft cold water and draining off the water with gentle pressure deprives them of a least one-quarter of the toxic substance. The cold water removes only very little protein and no starch.

Undecorticated peas part with a mere fraction of the principle to cold water. The source: reprint

Vicia ervilia toxicity/ Vicism/ Lathyrus toxicity/ Grain legumes/ Lens culinaris toxicity/ Lathyrism history/ Lathyrism review/ Ruminants
Neurology/ Forage/ Grazing/ Lathyrus sativus/ Lathyrus cicer/ Lathyrus clymenum/ Cattle/ Agriculture/ Lathyrism symptoms/ Algeria/ Bovine feed/ Brain/ Bread/ Cattle feed/ Cereals/ Cold/ Diet/ Ducks/ Europe/ Feed/ Feeding/ Feed ruminants/ Feed Lathyrus sativus/ Feed Lathyrus cicer/ Feed Lathyrus ochrus/ Female/ Flour/ Fodder/ Food/ France/ Geese/ Glycine max/ Pulses/ Grain legumes/ India/ Herbivory/ History Horse diseases/ Horses/ Horses lathyrism/ Human consumption/ Immunity/ India/ India Diet/ Dietary/ India L. sativus/ India L. sativus consumption/ India lathyrism/ Khesari/ Lathyrism/ Lathyrism Algeria/ Lathyrism animals/ Lathyrism horses/ Lathyrism India/ Lathyrism L. cicer/ Lathyrism L. clymenum/ Lathyrism ochrus/ Lens culinaris/ Males/ Humans/ Milk/ Mixtures/ North Africa/ Africa North/ Parasity/ Pigs Pigeons/ Population/ Poultry/ Primates/ Protein/ Reptiles/ Review/ Ruminant feed/ Ruminants L. sativus/ Seed/ Sensation/ Sheep/ Sheep feed Soaking/ Spasticity/ Spinal cord/ Susceptibility/ Symptoms lathyrism/ Toxicity L. cicer/ Toxicity L. sativus/ Toxicity L. sativus poultry Toxicity/ Trichicum aestivum/ Utilisation/ Vicia/ Vicia ervilia/ Vicia sativus/ Water/ Whole plant/ reprint.

Source: reprint

Source: ref ex Selye (1957)

Lathyrism Syria/ Lathyrism/ Syria/ Syria lathyrism.

Source: ref ex Vet. Bull. 3, p 382 (1933) M. W. Perry

Syria/ Syria lathyrism/ Syria L. sativus/ Lathyrus Syria/ Lathyrus sativus Syria/ Feed/ Feed L. sativus/ Feed Lathyrus spp/ Toxicity/ Toxicity L. sativus.

Poisoning caused by the seeds of Lathyrus species is discussed from the veterinary point of view.
Source: HA 2: p. 209

Lathyrism Spain/ Spain lathyrism/ Lathyrus sativus Spain/ Lathyrus sativus Spain/ Lathyrism/ Lathyrism veterinary/ Seed/ Spain/ Spain L. sativus.

Source: reprint

Rats/ Lathyrism/ Rodents/ Lathyrus odoratus/ Lathyrism nutrition/ Lathyrism rats/ Nutrition/ reprint.

Loisel, G. (1933). Le lathyrisme syrien. La Presse Medicale (7):149-150
Source: ref ex Zalkind 1937

Lathyrism Syria/ Syria lathyrism/ Lathyrism/ Syria.

Lathyrus sativus forage feeding trials with cattle, sheep, horses and rabbits. Clear cases of toxicity were observed with the horses (n=2). week two: loss of condition, week three: Diarrhoea, dirty brown conjunctiva, week 4: in one horse progressive paralysis. Post Mortem: Abrasions on all prominent parts of the carcasse; intense general icterus; hyperaemia of the lungs; subepicardial haemorrhages; pigmentation and degenerative changes in the liver; blood not coagulated and tarry in consistency; gastrophilus larvae in the stomach;

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impaction of caecum, which contained a large amount of grit; chronic enteritis. Histology: no specific changes in the organs. Liver and kidney showed hyperaemia. Death occurred in one horse after 35 days and ingestion of 114 kg of the forage (fresh weight). The other horse was fed for 55 days consuming 212 kg fresh forage developing similar symptoms. Lack of further L. sativus feed prompted discontinuation of the experiment and the animal recovered.

Source: reprintDE


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T. studied the morphological changes of the vagus and recurrent nerves as well as alterations in the muscles of the larynx due to poisoning by Lathyrus sativus. Several photomicrographs illustrate the histological changes occurring in the affected tissues. The nerve fibres of the vagal nervous system undergo degenerative changes such as vacuolation, etc., particularly in the peripheral regions of the nerves. These changes, which develop quite irregularly, were specially marked in the preterminal sections of the left recurrent nerve. In the liver and spleen, a characteristic and profound inflammation of the tissues was observed. The history of the disease in a few horses is given in considerable detail. The poisonous elements in L. sativus appear to be produced by the plant in connection with a special type of soil, cultivation, and climatic conditions [E. R.P.].

Source: Veterinary Bulletin 14 (1944) p. 136

Lathyrism Russia/ Russia lathyrism/ Horses lathyrism symptoms/ Lathyrism horses/ Lathyrism histology/ History lathyrism/ Horses lathyrism case studies/ Case studies lathyrism/ Environmental variation toxicity/ Toxicity environmental effects/ Vagus nerve/ Larynx/ Spleen Inflammation/ Soil type/ Climate/ Cultivation/ Neurology/ Soil/ Lathyrus sativus/ Agriculture/ Lathyrism symptoms/ Environmental effects Environment/ Fibre/ Histology/ History/ Horse diseases/ Horses/ Horses lathyrism/ Lathyrism/ Lathyrism history/ Lathyrism veterinary Lathyrus toxicity/ Liver/ Muscles/ Nerves/ Nervous system/ Peripheral/ Russia/ Symptoms lathyrism/ Toxicity L. sativus/ Toxicity.

Source: reprintDE

Source: reprintDE

Source: reprintDE

Jiménez Díaz, C. and Vivanco, F. (1942). Estudios sobre el latirismo. III. Intentos de reproducir en los animales el latirismo por una dieta de harina de almortas (Lathyrus sativus). Revista Clinica Espanola 5:234-241
Source: reprintDE

Source: reprintDE
Lathyrism in Spain

Source: reprintDE

Source: reprintDE

This synthesis paper contains maps depicting the areas of Lathyrus sativus cultivation in Spain and areas affected by lathyrism.
Source: reprintDE

Jiménez Díaz, C. and Romeo, J. M. (1943). **Estudios sobre el latirismo. VII. Influencia del factor hepatico sobre la absorcion de la albumina de la almorta.** *Revista Clinica Espanola* **8**:244-247
Source: reprintDE

Source: reprintDE

Source: reprintDE

Source: reprintDE

The toxic effects of the following plants are recorded: etc., kesari (Lathyrus sativus) which produced lathyrism, etc.
Source: HA 14:1589

Source: reprintDE

Abstract only.
Source: reprintDE

Lathyrism Spain/ Spain lathyrism/ Lathyrism/ Treatment lathyrism/ Lathyrism treatment.

Source: reprintDE
Lathyrism Spain/ Spain lathyrism/ Lathyrism/ Spain/ reprint.

In the presence of a protein poor diet (2000 kilo calories/day), 70 g Lathyrus sativus do not produce lathyrism. Up to 300 g of L. sativus can be consumed/day in the presence of protecting factors derived from better quality food (meat, cheese, milk) without provoking lathyrism. A higher dose of L. sativus leads to lathyrism even in the presence of protecting factors.
Source: reprintDE
Lathyrism Spain/ Spain lathyrism/ Malnutrition lathyrism/ Famine/ Malnutrition/ Lathyrus sativus/ Diet/ Food/ Lathyrism/ Meat/ Milk/ Protein Quality/ Spain/ Spain L. sativus/ reprint.

Ranjan, M. P. (1944). Lathyrism in India. Antiseptic 41:652
Source: ref ex Selye (1957)
Lathyrism India/ India lathyrism/ India/ Lathyrism.

87 cases of lathyrism in the province Vizcaya are reported and described in detail. The author believes that individuals who have eaten L. sativus for all their lives have become accustomed to some extent to the toxins in this diet and that fatigue may have become a dispositional factor. A sanitary classification of L. sativus types would be required as a basis for prophylaxis.
Source: reprintDE
Lathyrism Spain/ Spain lathyrism/ Lathyrism predisposing factors/ Antinutritional factors/ Lathyrus sativus/ Diet/ Lathyrism/ Spain/ Spain L. sativus/ Toxin/ reprint.

Source: reprintDE
Spain lathyrism/ Lathyrism Spain/ Lathyrism/ Spain.

Source: ref ex Selye (1957), reprintDE
Lathyrism India/ India lathyrism/ India/ Lathyrism/ reprint.

Lathyrism Spain/ Spain lathyrism/ Lathyrism/ Spain.

Source: ref ex Selye (1957)
Lathyrism treatment/ India/ India lathyrism/ Lathyrism/ Lathyrism India/ Lathyrism treatment/ Nervous system/ Neurology.

Source: ref ex Selye (1957)
Lathyrism serum biochemistry/ Enzymes serum phosphatase lathyrism/ Enzymes/ Lathyrism/ Lathyrism Biochemistry/ Lathyrism serum.

Lathyrism Ethiopia/ Ethiopia lathyrism/ Ethiopia/ Lathyrism.

Source: ref ex Selye (1957)
Lathyrism treatment/ Lathyrism symptoms/ India/ India lathyrism/ Lathyrism/ Lathyrism India/ Lathyrism treatment/ Symptoms lathyrism.

This paper describes the epidemic of lathyrism which affected the inmates of a German concentration camp in the Ukraine during WW 2. By taking Lathyrus sativus in a quantity of over 300 g/head/day, in the majority of
men a syndrome of signs arise (Lathyrism). Decrease of resistance through undernourishment (malnutrition), exhausting work and cold, as well as chronic disease (tuberculosis, diabetes) favour the onset of the disease and influence its course. The first symptoms of lathyrism are spasms in all muscular regions, and frequent imperative urinary desire. After about three months' ingestion, in a great deal of the patients, spastic paraparesis of the lower extremities appears that may progress to spastic paraplegia. In about 10%, seldom in the early stage, more frequently as late as 4-6 months after the beginning of Lathyrus consumption, vasomotor disturbances of circulation in the legs take place, giving rise to all degrees of anaemisation, from pallor with paroxysmal pains, local necroses up to ascending, symmetrical gangrene. The present observations have come out of a concentration camp on the Ukraine territory, occupied by German-Romanian troops. Of the 1350-1400 campmates, 60%, over 800, fell ill with lathyrism to varying degrees. The signs were reversible in light and medium- severe cases, capable of improving in severe ones. In 30 cases severe cases crippling by stabilised disorder of gait endured. Some patients retained scars after mutilation of deep necroses, and deformations through loss of gangrenous toes. 4 patients died, three of them of ascending symmetrical gangrene. (D.E. cf. Schuchardt's review of lathyrism, describing gangrene in some cases).

Source: reprintDE


Source: reprintDE


Lathyrism India/ India lathyrism/ Bihar/ Bioassay L. sativus/ Lathyrus sativus bioassay/ India/ India L. sativus/ Lathyrism/ Lathyrism Bioassay Lathyrus sativus.


Source: reprintDE

Ortiz de Landazuri, E. and Galdo Seco, A. (1949). Observaciones en equidos de la fase de intervalo entre la administracion de una dieta latirogena y el comienzo de la enfermedad [Observations on Equidae of the interval between giving a diet that produces lathyrism and the appearance of the disease]. Revista Clinica Espanola 32:29-32.

An outbreak of lathyrism in horses in a province of Granada is reported. The animals had been fed for 97 days on a diet which included 2.6 kg blue vetch ( D.E. comment: Lathyrus sativus ) and 1 kg tares (yeros) [D.E. comment: Vicia ervilia] per head daily. Four days after discontinuing this diet, when the animals were receiving only barley and straw, the first case of lathyrism occurred. Eventually 15 of the 24 animals were affected, and the mortality was 25 per cent. The last case occurred 50 days after the vetch diet was discontinued. Hybrids seemed most susceptible to the disease. 14 of 16 mules being affected, but only 1 of 7 mares.


Source: ref ex Foury (1954)


Lathyrism review/ Lathyrism nutrition/ Syndrome/ Lathyrism/ Nutrition/ Review/ Tropical medicine/ Tropics.
Lathyrus tingitanus indigenous to North Africa was recommended by Dr. Trabut, Algeria. Introduced to USA about 1900 as chicharaca, it was found to be more resistant to frost and drought than field peas, sweet clover (Melilotus) or vetches (Vicia spp., V. sativa etc.). It has been grown successfully on poor, sandy soil at a temperature as low as -7 deg C. In parts of Australia where annual rainfall is 16 in. L. tingitanus takes from 6 to 7 months to mature. Early autumn sowing in land prepared as for cereals is best. Seed rates from 8 to 30 lb. per acre are quoted. The seed can be broadcast, drilled or sown from a combine drill with 1 to 1.5 cwt. superphosphate per acre. Inoculation is recommended in the absence of suitable Rhizobia. A mixture of 5 to 8 lb. of Tangier pea sown with 1 bu. of oats per acre is said to make an excellent hay or silage crop. Although the forage of this pea is nutritious and highly palatable to stock, there is evidence from America that its seeds contain a toxic substance which can cause lathyrism in rats (Cf. Lewis et al. 1948). If tangier pea is grown for seed, the haulms left after threshing compare favourably with oat and bean straw. When chaffed and moistened they are relished by stock. Tangier pea can also be used as a green manure crop.

Forage L. tingitanus/ Mixtures L. tingitanus/ Lathyrus tingitanus toxicity/ Lathyrus tingitanus cultivation/ Agronomy L. tingitanus/ Rodents L. tingitanus toxicity/ Intercropping/ Forage/ Soil/ Lathyrus tingitanus/ Hay/ Straw/ Agriculture/ Green manure/ Africa/ Algeria/ Agronomy mixtures/ America/ Australia/ Cereals/ Climate/ Cold/ Cultivation/ Drought/ Fermentation/ Forage Australia/ Frost/ Inoculation/ Lathyrism Algeria/ Lathyrism rats/ Lathyrus toxicity/ Manures/ Melilotus/ Mixtures crops/ North Africa/ Africa North/ Avena sativa/ Rats/ Resistance Rodents/ Sand/ Sandy Soil/ Seed/ Seeding/ Silage/ Soil sandy/ Temperature/ Toxicity/ USA/ Vicia spp/ Vicia/ Vicia sativa.


Lathyrism Ethiopia/ Ethiopia lathyrism/ Ethiopia/ Lathyrism.

Source: reprintDE
Sulfur amino acids/ Lathyrism treatment parenteral methionine/ Methionine lathyrism treatment/ Amino acids/ India/ India lathyrism/ Lathyrism Lathyrism India/ Lathyrism treatment/ Methionine/ Reports/ Sulfur/ reprint.

Osteolathyrism/ Dissertations/ Distribution plants/ Experimental lathyrism/ Lathyrism/ Lathyrism experimental/ Lathyrism France.

Source: ref ex Roy (pers. comm.)
Experimental lathyrism/ Osteolathyrism/ Lathyrism/ Lathyrism experimental/ Lathyrism France.

Source: ref ex Roy (pers. comm.)
Osteolathyrism/ Lathyrus odoratus toxicity/ Osteolathyrism rat/ Rat Lathyrus odoratus/ Osteolathyrism/ Lathyrism nutrition/ Lathyrism rats Lathyrus odoratus/ Lathyrus toxicity/ Nutrition/ Rats/ Rodents/ Toxicity Osteolathyrism/ Toxicity L. odoratus/ Toxicity.

Source: ref ex Roy (pers. comm.)
Osteolathyrism protecting (partial) from/ Protection (partial) from Dietary influence on toxicity/ Toxicity dietary protection/ Lathyrus odoratus toxicity/ Toxicity L. odoratus/ NPAA toxicity/ Toxicity NPAA/ Lathyrus odoratus/ Osteolathyrism/ Biology NPAA/ Diet/ Dietary/ Lathyrus toxicity/ NPAA/ NPAA biology/ Toxicity Osteolathyrism/ Toxicity.

Lathyrus pusillus (seed): N-(2-cyanoethyl)glutamine; (S)-form.
Lathyrus pusillus toxicity/ NPAA toxicity gamma glutamyl beta aminopropionitrile/ NPAA gamma glutamyl beta aminopropionitrile/ Toxicity gamma glutamyl beta aminopropionitrile/ Toxicity L. pusillus/ Osteolathyrism/ NPAA gamma glutamyl peptides/ Aminopropionitriles Experimental lathyrism/ Gamma glutamyl peptides/ Glutamine/ Isolation/ Lathyrism/ Lathyrism experimental/ Lathyrism France/ Lathyrus pusillus/ Lathyrus toxicity/ NPAA/ Peptides/ Pharmaceutical/ Seed/ Toxicity Osteolathyrism/ BAPN/ Toxicity beta aminopropionitrile/ Toxicity.

Lathyrism/ Lathyrus/ Argentina/ Argentina.

Lathyrism India/ India lathyrism/ India report/ India/ Lathyrism/ Reports.

Source: ref ex Selye (1957)
Lathyrism/ Lathyrism nutrition/ Nutrition/ Review.

Osteolathyrism/ Agriculture/ Dissertations/ Distribution plants/ Experimental lathyrism/ Lathyrism/ Lathyrism experimental/ Lathyrism France.

Source: ref ex Roy (pers. comm.)
Lathyrus odoratus toxicity/ Toxicity L. odoratus/ Osteolathyrism dietary proteins/ Dietary proteins Lathyrus odoratus/ Osteolathyrism/ Diet Dietary proteins/ Differentiation/ Dietary/ Lathyrism/ Lathyrism nutrition/ Lathyrus odoratus/ Lathyrus toxicity/ Nutrition/ Protein/ Toxicity Osteolathyrism/ Toxicity.

Source: ref ex Selye (1957)
Lathyrism/ Osteolathyrism/ Lathyrism nutrition/ Nutrition/ Review.

Source: Grmek (1980)
Hippocrates/ History lathyrism/ History/ History of Medicine/ Lathyrism/ Lathyrism history.

Excellent review with 192 references.
Source: reprintDE
Lathyrism/ Lathyrus/ Lathyrism review/ Review/ reprint.

Source: DE_94_2
Lathyrism India/ India lathyrism/ Food/ India/ Lathyrism.

Review lathyrism/ Lathyrism review/ Osteolathyrism/ Lathyrism/ Lathyrism nutrition/ Nutrition/ Review.

Lathyrism India/ Uttar Pradesh lathyrism/ India/ India Uttar Pradesh/ India lathyrism/ Lathyrism/ Uttar Pradesh.

Lathyrism review/ Germany/ Lathyrism/ Review.

Lathyrism related diseases/ Lathyrism.

Lathyrism epidemiology/ Delhi/ Epidemiology lathyrism/ India/ India lathyrism/ Lathyrism/ Lathyrism India/ Reports.

Lathyrism epidemiology/ Epidemiology lathyrism/ Lathyrism/ Madhya Pradesh.

Lathyrism/ Lathyrism Ethiopia/ Ethiopia lathyrism.

Lathyrism physiology/ Hydroxy-proline excretion lathyrism/ Lathyrism/ Physiology not plant/ Proline.

Lathyrism Bangladesh/ Bangladesh lathyrism/ Bangladesh/ Lathyrism/ Rural/ West Bengal.

Source: ref ex Roy (pers. comm.)
Lathyrism/ Lathyrism animals/ Humans.

Source: ref ex Dwivedi (1989).
Lathyrism epidemiology/ Lathyrism India/ India lathyrism/ Epidemiology lathyrism/ India/ Lathyrism.

Lathyrism Spain/ Spain lathyrism/ Lathyrism etiology/ Lathyrism etiology/ Lathyrism etiology analysis/ Etiology/ Lathyrism.

Lathyrism/ Scotland/ Medical/ Dissertations.

Lathyrism clinical/ Lathyrism skeletal/ Bones/ Lathyrism/ Humans/ Skeletal.

5 of 8 brothers in one family were affected by lathyrism in 1947. To explain this high frequency within a single family, the authors support the hypothesis that a genetic enzyme deficiency coupled with L. sativus toxicity is responsible for lathyrism.

Source: reprintDE
Lathyrism Spain/ Spain lathyrism/ Lathyrism genetic susceptibility/ Toxicity/ Lathyrus sativus/ Deficiency/ Enzymes/ Lathyrism/ Lathyrus toxicity/ Spain/ Spain L. sativus/ Susceptibility/ Toxicity L. sativus/ reprint.

Lathyrism/ Lathyrism review/ Review lathyrism.

Source: reprintDE
Lathyrism bioassay/ Bioassay chicks/ Neurology/ Lathyrus sativus/ Bioassay/ Bioassay L. sativus/ Lathyrus sativus bioassay/ Injections Lathyrism/ Neurolathyrism/ Poultry/ reprint.

Source: reprintDE
NPAA Lathyrus/ Lathyrus spp toxicity/ Toxicity Lathyrus spp/ Chemotaxonomy Lathyrus spp/ Taxonomy/ Chemotaxonomy/ Lathyrism Lathyrus spp/ Lathyrus toxicity/ NPAA/ Toxicity/ reprint.

Lathyrus sativus toxicity/ Lathyrism review/ Lathyrus sativus/ India/ India L. sativus/ India lathyrism/ Lathyrism/ Lathyrism India/ Lathyrus toxicity/ Review/ Toxicity L. sativus/ Toxicity.

Lathyrism India/ India lathyrism/ Lathyrism epidemiology/ Epidemiology lathyrism/ India/ India Madhya Pradesh/ Lathyrism/ Madhya Pradesh.

Lathyrism prevention/ Prevention lathyrism/ India lathyrism/ Lathyrism India/ Agriculture/ Delhi/ India/ Lathyrism/ Paralysis.

Review of lathyrism literature, the toxins involved and the chemical composition and digestibility of the forage.
Source: HA 36:762
Review Lathyrism literature/ Forage chemical composition review/ Forage digestibility/ Nutritional value/ Antinutritional factors/ Forage Lathyrus sativus/ Chemical composition/ Digestibility/ Energy/ Forage chemical composition/ Lathyrism/ Lathyrism review/ Reviews/ Toxin.

Lathyrus tingitanus (seed): 1,4-butanediamine (lathyrine). Intraperitoneal administration of lathyrine (100-400 mg/kg) to rats, mice, chicks elicits no toxic symptoms.
Source: reprintDE
NPAA Lathyrine isolation/ NPAA Rodents/ Tingitanine/ Lathyrus tingitanus/ Lathyrism symptoms/ Amino acids/ Ecology/ Isolation Lathyrism/ Lathyrism rats/ Lathyrus toxicity/ Mice/ NPAA/ Poultry/ Rats/ Rodents/ Seed/ Symptoms lathyrism/ Systematics/ Toxicity/ reprint.

Source: Medline (66-69) 66065840
Lathyrism metabolism/ Biochemistry/ Lathyrism/ Lathyrism Biochemistry/ Metabolism.

Source: HA 36:193

Lathyrism labelled thymidine/ Thymidine radioactive lathyrism/ Dissertations/ Distribution plants/ Lathyrism/ Thymidine.
Source: Medline (66-69) 66014024
Rabbits/ Rats/ Kyphosis etiology/ Lathyrism complications/ Scoliosis etiology/ Rodents/ Neurology/ Bones/ Lathyrism/ Lathyrism etiology
Lathyrism rats/ Lathyrism skeletal/ Skeletal/ Spine.

Source: Medline (66-69) 66158108
Estrogens metabolism/ Rats/ Cyanides pharmacology/ Lathyrism/ Neoplasms Experimental etiology/ Rodents/ HCN/ Lathyrism etiology
Lathyrism rats/ Metabolism.

Source: Medline (66-69) 66063710
Ganglia Spinal pathology/ Microscopy/ Neurologic Manifestations/ Rats/ Central Nervous system diseases pathology/ Cyanides poisoning Lathyrism pathology/ Rodents/ Neurology/ Central Nervous system/ Ganglia/ HCN/ Lathyrism/ Lathyrism Anatomy/ Lathyrism rats/ Nervous system/ Neurolathyrism/ Spinal cord/ Nervous system diseases.

Source: Medline (66-69) 66050196
Spain/ Mice/ Alopecia etiology/ Brain Diseases etiology/ Lathyrism pathology/ Rodents/ Neurology/ Lathyrus sativus/ Alopecia/ Brain/ Brain diseases/ Flour/ Lathyrism/ Lathyrism etiology/ Lathyrism Spain/ Spain L. sativus.

In the film 'Ashes' [English title] by Andrzej Wajda based on the novel 'Lost army' [English title] by Stephen Zeromsky spanning the period 1798-1812, a horse is poisoned by grain from a Spanish village. The footage of the horse losing control of its hindlegs and falling down a steep cliff is very graphic. This black and white film was broadcast by the Australian channel SBS on the 2.6.1996 at 0.30 am. Distributor of the film is Atlas International in Munich, Germany Ph: 89227525, Fax: 89224332. Inclusion of this item in the bibliography aims to draw attention to the visual media as potential sources of illustrative material and knowledge about lathyrism.
Lathyrism history/ History lathyrism/ Cinema/ Film/ Visual media/ Horses/ Horses lathyrism/ Lathyrism Spain/ Spain lathyrism/ Lathyrism Spain.

Source: Medline (66-69) 66073361
Semistarvation /lathyrism/ Lathyrism fasting rats/ Lathyrism periosteum surgery/ Rodents/ Lathyrism/ Lathyrism rats/ Rats.

Source: Medline (66-69) 67179713
Poultry/ Adenosine Triphosphate metabolism/ Lathyrism metabolism/ Liver metabolism/ Mitochondria metabolism/ Oxidative Phosphorylation Osteolathyrism/ Beta aminopropionitrile/ Agriculture/ Adenosine triphosphate/ Aminopropionitriles/ Chickens/ Lathyrism/ Liver/ Metabolism plant/ Mitochondria/ BAPN.

Lathyrus bibliography/ Bibliography Lathyrus/ Bibliography lathyrism/ Lathyrism bibliography/ Agriculture/ Bibliography/ Lathyrism bibliography/ USDA.

Source: Medline (66-69) 66110038
Lathyrism/ Aging drug effects/ Drugs.

López Aydillo, N. R. (1966). Acerca del llamado 'lathirismo o neurolatirismo experimental'. Resultados de nuestras experiencias en ratas noruegas con el bis-betacianoetilamina o B-B'-iminodipropionitrilo (IDPN). [On the so called 'experimental lathyrism or neurolathyrism'. Results of our experiments in
Norwegian rats with bis betacyanoethylamine or B B' iminodipropionitrile (IDPN)]. Trab. Inst. Cajal
Invest. Biol 58:1-54
Source: Medline (66-69) 68156258
Rats/ Cyanides poisoning/ Lathyrism pathology/ Nervous system pathology/ Rodents/ Neurology/ Osteolathyrism/ Experimental lathyrism
HCN/ Lathyrism/ Lathyrism experimental/ Lathyrism France/ Lathyrism rats/ Nervous system/ Neurolathyrism/ Norway.

Potentiation of a toxic fraction from the seed by some amino acids. Indian Journal of Biochemistry 3
(2):130-131
Source: Medline (66-69) 67134276 reprintDE
Amino acids pharmacology/ Lathyrism India/ India lathyrism/ Biochemistry/ Lathyrus sativus/ Amino acids/ India/ India L. sativus/ Lathyrism
Lathyrism Biochemistry/ Lathyrus toxicity/ Seed/ Toxicity L. sativus/ Toxicity/ reprint.

Source: Medline (66-69) 66153178
Cyanides poisoning/ Hallervorden Spatz Syndrome/ Lathyrism/ Lipoidosis/ Vitamin E Deficiency/ Axons pathology/ Nervous system diseases
Neurology/ Axons/ Syndrome/ Deficiency/ HCN/ Lathyrism pathology/ Nervous system/ Tocopherols/ Vitamin E/ Vitamins.

Strong, F. M. (1966). Naturally occurring toxic factors in plants and animals used as food. Canadian
Medical Association Journal 94 (12):568-573
Source: Medline (66-69) 66096918
Cyanides poisoning/ Food Analysis/ Glycosides poisoning/ Goitre etiology/ Hypertension etiology/ Lathyrism etiology/ Monoamine Oxidase
Inhibitors/ Sulfur poisoning/ Symptomimetics poisoning/ Meat/ Plant Poisoning/ Plants Edible toxicity/ Glycosides/ Aminopropanitriles
Food/ Goitre/ HCN/ Hypertension/ Lathyrism/ Lathyrism animals/ Monoamine/ Sulfur/ BAPN/ Toxicity beta aminopropanitrile/ Toxicity.

Source: http://vm.cfsan.fda.gov/~djw/SI-SZ.html
Lathyrism/ India/ Etiology/ Prevention.

Pharmazie 21 (8):445-457
Source: Medline (66-69) 68193113 : reprintDE
Alanine toxicity/ Canavanine/ Cycloserine toxicity/ Fungi analysis/ Lathyrism chemically induced/ Plants analysis/ Rats/ Amino acids
toxicity/ Rodents/ NPAA toxicity review/ Amino acids/ Amino acids analysis/ Amino acids reviews/ Canavanine/ Carbohydrates/ Fungi
Mycology/ Lathyrism/ Lathyrism rats/ Lathyrism review/ Microbiology/ NPAA/ NPAA review/ NPAA rodents/ Review/ Toxic amino acids
Toxicity/ reprint.

Source: Medline (66-69) 67173195 : reprintDE
NPAA toxicity/ Lathyrism chemically induced/ Neurons drug effects/ Spinal Cord drug effects/ ODAP toxicity/ ODAP bioassay cats
Neurology/ Bioassay/ Drugs/ Lathyrism/ Lathyrism Bioassay/ Lathyrism ODAP toxicity/ Lathyrism toxicity/ Neurons/ NPAA/ ODAP/ Spinal
cord/ Toxicity ODAP/ Toxicity/ reprint.

Anonymous (1967). Simple measures for removing the toxic factors from Lathyrus sativus. Nutrition
Reviews 25 (8):231-233
Certain soaking, steeping and cooking procedures were found to remove the toxic factors from L. sativus
seeds. In all methods the excess water is discarded. Suggests Vitamin supplementing foods to compensate for
loss of Vitamins during leaching of L. sativus for detoxification. Advocates detoxification rather than banning
L. sativus consumption, since it is eaten by necessity in drought affected areas. Cf. Lathyrism Spain
Phytosanitary classification of L. sativus varieties!
Source: Medline (66-69) 68091672; reprintDE
India/ Cookery India/ Lathyrism etiology/ Lathyrus sativus processing/ Processing India L. sativus detoxification/ Lathyrus sativus detoxification
Homeeconomics/ Antinutritional factors/ Economics/ Lathyrus sativus/ Climate/ Cookery/ Detoxification L. sativus/ Drought
India L. sativus/ India L. sativus consumption/ India lathyrism/ Lathyrism/ Lathyrism economics/ Lathyrism India L. sativus/ Lathyrism nutrition
Lathyrus toxicity/ Nutrition/ Processing/ Reviews/ Seed/ Soaking/ Spain/ Spain L. sativus/ Toxicity L. sativus/ Toxicity/ Toxin/ Varieties
Vitamins/ Water detoxification/ Water/ reprint.

Electroencephalography and Clinical Neurophysiology 23 (6):588
Source: Medline (66-69) 68151098
Chronic Disease/ Paraplegia complications/ Electromyography/ Lathyrism physiopathology/ Motor Neurons physiopathology/ Clinical
neurophysiology/ Electroencephalography/ Lathyrism/ Lathyrism complications/ Lathyrism electromyography/ Motor neurons/ Neurology
Neurons/ Paraplegia.
Source: Medline (66-69) 67202289
Copper analysis/ Liver analysis/ Liver pathology/Cattle Diseases etiology/Cattle Diseases pathology/Lathyrism veterinary/Ruminants/Cattle Agriculture/Cattle diseases/Copper/Experimental lathyrism/Heavy metals/Lathyrism/Lathyrism etiology/Lathyrism experimental Lathyrism France/Lathyrism pathology/Liver/Metals/Trace elements.

Source: Medline (66-69) 67202288
Copper analysis/ Liver Diseases veterinary/Sheep/Lathyrism veterinary/Sheep Diseases etiology/Sheep Diseases pathology/Ruminants Agriculture/Copper/Experimental lathyrism/Heavy metals/Lathyrism/Lathyrism etiology/Lathyrism experimental/Lathyrism France Lathyrism pathology/Liver/Metals/Trace elements.

Source: Medline (66-69) 69127529
Genetics/ Adult/Cardiovascular Diseases genetics/Diet/Karyotyping/Lathyrism genetics/Respiratory Insufficiency etiology/Marfan Syndrome/Syndrome/Lathyrism/Lathyrism etiology.

Source: Medline (66-69) 67095185
Adult/Cysts chemically induced/Drug Eruptions etiology/Hepatolenticular Degeneration drug therapy/Lathyrism/Penicillamine adverse effects/Drugs/Lathyrism drug therapy/Lathyrism etiology/Humans/Penicillamine/Skin.

Source: Medline (66-69) 68128773
Alanine Aminotransferase blood/Aminobutyric Acids/Aspartate Aminotransferase blood/Chromatography Paper/Cyanides/Fetal Death chemically induced/Fetal Death veterinary/Plant Extracts/Pregnancy/Sheep/Abortion Veterinary/Lathyrism veterinary/Plant Poisoning veterinary/Sheep Diseases chemically induced/Ruminants/Agriculture/Aspartate Aminotransferase/Aspartic acid/Blood/Chromatography Experimental lathyrism/Extraction/HCN/Lathyrism/Lathyrism experimental/Lathyrism France/Plant poisoning.

Source: Medline (66-69) 68329119
Food Contamination/Food Contamination Radioactive/Food Microbiology/Food Poisoning/Lathyrism WHO/Food Additives Contamination/Food/Microbiology.

Source: Medline (66-69) 68008057
Adenosine Triphosphate/Alanine/Amino acids biosynthesis/Carbon Isotopes/Chromatography Paper/Coenzyme A/Electrophoresis Lathyrism etiology/Ligases/Magnesium/Oxalates metabolism/Seed growth and development/Plants Edible metabolism/Seed metabolism Toxin biosynthesis/ODAP/Antinutritional factors/Lathyrus sativus/Beta Alanine analogs and derivatives/Amino acids/Biosynthesis Chromatography/Ecology/Lathyrism/Metabolism plant/NeuroToxins/ODAP biosynthesis/Oxalates/Seed/Systematics/Toxin.

Source: Medline (66-69) 68395218
Adult/Middle Age/Socioeconomic Factors/Spain/Lathyrism epidemiology/Age/Epidemiology lathyrism/Lathyrism/Lathyrism Spain.

Source: Medline (66-69) 68126566
Alcohols diagnostic use/Motor Neurons physiopathology/Muscles innervation/Myofibrils drug effects/Procaine diagnostic use/Lathyrism physiopathology/Myofibrils physiopathology/Spasm classification/Drugs/Lathyrism/Motor neurons/Muscles/Neurology/Neurons/Spasm Spasticity.
Source: Medline (66-69) 69076461 Glycosaminoglycans blood/ Guinea Pigs/ Models Biological/ Lathyrism complications/ Silicosis chemically induced/ Silicotuberculosis/ Blood Lathyrism Models/ Pulmonary/ Rodents.

Source: Medline (66-69) 68315864 India/ Lathyrism prevention and control/ Seed analysis/ Lathyrus sativus/ Food adulteration/ Food/ India L. sativus/ India lathyrism/ Lathyrism Lathyrism India/ Lathyrism prevention/ Prevention lathyrism/ Lathyrism prevention/ Seed.

NPAA toxicity beta aminopropionitriletoxicity/ Osteolathyrism/ Aminopropionitriles/ Dissertations/ Distribution plants/ Experimental lathyrism Lathyrism/ Lathyrism experimental/ Lathyrism France/ Molecular/ NPAA/ Toxicity Osteolathyrism/ BAPN/ Toxicity beta aminopropionitrile Toxicity.

Source: reprintDE Lathyrism/ ODAAP/ Animal/ Neurology/ Lathyrism animals/ Models/ Neoulathyrism/ Primates/ reprint.

Lathyrism review/ Lathyrism/ Review.

Lathyrism.

López Aydillo, N. R. and Toledano Jiménez Castellanos, A. (1968). Contribucion a la etiologia y patogenia del latirismo experimental en ratones blancos mediante la ingestion exclusiva de harna de almortas (Lathyrus sativus) y dietas en blanco, mixta y ajustadas total y parcialmente. Discusion de los factores carencial y neurotoxico desde el punto de vista clinico e histopatologico. [Contribution to the etiology and pathogenicity of experimental lathyrism in white mice using the exclusive digestion of flour seeds (Lathyrus sativus) and bland, mixed and totally and partially adjusted diets. Discussion of the deficiency and neurotoxic factors, from the clinical and histopathological viewpoints], Trab. Inst. Cajal. Invest. Biol 60:157-190
Source: Medline (66-69) 70282909 Deficiency diseases/ Brain drug effects/ Brain Diseases etiology/ Deficiency Diseases complications/ Diet/ Rodents/ Flout/ Rats/ Seed analysis Sex Factors/ Toxin pharmacology/ Brain Chemistry/ Lathyrism etiology/ Seed/ Lathyrism Spain/ Spain lathyrism/ Malnutrition L. sativus Neurology/ Famine/ Malnutrition/ Nutritional value/ Antinutritional factors/ Lathyrus sativus/ Osteolathyrism/ Agriculture/ Animal feed/ Brain Brain diseases/ Chemistry/ Deficiency/ Drugs/ Experimental lathyrism/ Feed/ Feed Lathyrus sativus/ Lathyrism/ Lathyrism animals/ Lathyrism complications/ Lathyrism experimental/ Lathyrism France/ Lathyrism rats/ Mixe/ Mixtures/ NeuroToxin/ Pathogenicity/ Sex/ Spain/ Spain L. sativus/ Toxin.

Source: Medline (66-69) 70104594 Brazil/ Nutrition/ Rats/ Favism/ Lathyrism/ Seed/ Rodents/ Food/ Lathyrism nutrition/ Lathyrism rats.

Source: Medline (66-69) 68401762 Acidosis physio-pathology/ Blood Brain Barrier drug effects/ Body Weight drug effects/ Brain drug effects/ Carbon Isotopes/ Haplorhini Hindlimb drug effects/ India/ Mice/ Rats/ Seed analysis/ Spasm chemically induced/ Lathyrism chemically induced/ Paralysis chemically induced/ Rodents/ Neurology/ Amino acids/ Amino acids analysis/ Arginine/ Blood brain barrier/ Blood/ Body weight/ Brain/ Drugs/ Hindlimbs India lathyrism/ Lathyrism/ Lathyrism India/ Lathyrism physio-pathology/ Lathyrism rats/ Paralysis/ Seed/ Spasm/ Spasticity.

Source: Medline (66-69) 69130062
Abnormalities Multiple/ Alkaloids adverse effects/ Cleft Palate chemically induced/ Lathyrism/ Cattle Diseases/ Cleft Palate veterinary Ruminants/ Cattle/ Agriculture/ Alkaloids/ Lathyrism veterinary.


ODAP/ Lathyrus sativus toxicity/ Neurology/ Lathyrus sativus/ Agriculture/ Delhi/ Grain legumes/ Pulses/ India/ India L. sativus/ India lathyrism/ Lathyrism/ India/ Lathyrus toxicity/ Neurotoxins/ Toxicity ODAP/ Toxicity L. sativus/ Toxicity.


Source: Medline (66-69) 69104757 Hepatitis Toxic/ Lathyrism/ Nitriles chemical synthesis/ Chemical synthesis/ Liver/ Nitriles/ Pharmaceutical/ Synthesis chemical.

Zalkind, F. L. and Ermakov, V. V. (1968). [Selenium content in seeds of pulses in relation to lathyrism]. Agrokhimiya 6:98-107. Se content in some samples approached toxic levels ( up to 3.82 ppm) and was related to geographical origin. Seeds of the same original material grown in Poltava province, Ukraine, contained <0.5 ppm. Source: HA 39:294 Selenium L. sativus seed/ Lathyrus sativus seed selenium/ Lathyrus sativus toxicity/ Geography/ Grain legumes/ Pulses Heavy metals/ Lathyrus toxicity/ Metals/ Seed/ Selenium/ Toxicity L. sativus/ Toxicity/ Trace elements/ Ukraine.


Source: Medline (66-69) 69136487 ; reprintDE Age Factors/ Ammonia toxicity/ Aspartic Acid analysis/ Brain Chemistry/ Convulsions chemically induced/ Glutamates analysis/ Glutamine analysis/ Injections Intraperitoneal/ Liver analysis/ Rats/ Urea analysis/ Urea blood/ Brain drug effects/ Lathyrism/ Toxin toxicity/ ODAP Rodents/ Neurology/ Antinutritional factors/ Lathyrus sativus/ Age/ Ammonia/ Aspartic acid/ Blood/ Brain/ Chemistry/ Convulsions/ Drugs Glutamates/ Glutamine/ Grain legumes/ Pulses/ Injections/ Lathyrism rats/ Lathyrus toxicity/ Liver/ Neurotoxicity/ NeuroToxin/ Toxicity ODAP/ Toxicity L. sativus/ Toxicity/ Toxin/ Urea/ reprint.


Source: Medline (66-69) 69291777
Adolescence/ Adult/ Beriberi epidemiology/ Child/ Cyanides poisoning/ Environmental Exposure/ Food Poisoning/ Jamaica/ Lathyrism complications/ Leprosy epidemiology/ Nervous system diseases etiology/ Nigeria/ Nutrition Disorders complications/ Pregnancy/ Senegal/ Syphilis complications/ Vitamin B 12 metabolism/ Nervous system diseases/ Tropical Medicine/ Neurology/ Beriberi/ Binding sites/ Environment/ Epidemiology lathyrism/ Food/ HCN/ Lathyrism/ Lathyrism Adolescence/ Lathyrism epidemiology/ Lathyrism etiology/ Lathyrism nutrition/ Humans/ Manihot esculenta/ Cassava/ Metabolism/ Nervous system/ Nutrition/ Nutrition disorders/ Tropics/ Vitamin B/ Vitamins.

Source: Medline (66-69) 69282592
Alkenes/ Amino acids biosynthesis/ Amino acids classification/ Amino acids metabolism/ Amino acids toxicity/ Chemistry/ Cyclopropanes Hydroxamic Acids/ Hydroxylamines/ Lathyrism chemically induced/ Malonates/ Nerve Tissue metabolism/ Phosphonic Acids/ Plant Poisoning etiology/ Plants metabolism/ Proteins biosynthesis/ Biochemistry/ Neurology/ Amino acids/ Amino acids reviews/ Biosynthesis/ Lathyrism Lathyrism Biochemistry/ Lathyrism etiology/ Metabolism plant/ Nerves/ Phytochemistry/ Plant poisoning/ Protein/ Review/ Tissue/ Toxicity.