

Linum usitatissimum

TAXONOMICAL CLASSIFICATION:^[1]

- *Kingdom: Plantae*
- *Division: Tracheophyta*
- *Class: Magnoliopsida*
- *Order: Malpighiales*
- *Family: Linaceae*
- *Genus: Linum*
- *Species: Linum usitatissimum*



INTRODUCTION:^[2]

Flax, (*Linum usitatissimum*), plant of the family Linaceae, cultivated both for its fibre, from which linen yarn and fabric are made, and for its nutritious seeds, called flaxseed or linseed, from which linseed oil is obtained. Though flax has lost some of its value as a commercial fibre crop owing to the availability of synthetic fibres, flaxseed has grown in popularity as a health food, and flax remains economically significant in a number of countries around the world, including China, Russia, and Canada.

Flax is a herbaceous annual. When densely planted for fibre, plants average 0.9 to 1.2 metres (3 to 4 feet) in height, with slender stalks 2.5 to 4 mm (about 0.10 to 0.15 inch) in diameter and with branches concentrated at the top. Plants cultivated for seed are shorter and many-branched. The leaves, alternating on the stalk, are small and lance-shaped. The flowers, borne on stems growing from the branch tips, have five petals, usually blue in colour but sometimes white or pink. The fruits are small dry capsules composed of five lobes.

PROPERTIES AND USES:^[3]

Diabetes: Taking flaxseed might improve blood sugar control in people with type 2 diabetes.

High blood pressure: Taking flaxseed may slightly reduce blood pressure in people with high blood pressure

Breast pain (mastalgia): Eating a flaxseed muffin daily for 3 months or taking flaxseed powder daily for 2 months seems to reduce breast pain that occurs at the start of the menstrual cycle.

Obesity: Flaxseed may help reduce body weight, body mass index (BMI), and waist size in adults who are overweight or obese.

SIDE EFFECTS OF EXCESS CONSUMPTION:^[4]

- Allergic reactions
- diarrhea (oil)
- intestinal obstruction
- Bloating
- Stomach ache
- Constipation
- Gas (flatulence)

DOSAGE:^[4]

- **Seed:** 1 tbsp orally, two-three times a day
15-50 g/day
- **Oil:** 15-30 ml orally each day
Equivalent to 200 mg ALA each day

RESEARCH:

1. Thirty-five microsatellite loci were isolated and characterized in *Linum usitatissimum* using enriched genomic libraries. These loci were screened in eight cultivars from different countries

and regions and were found to be polymorphic, with the number of alleles per locus ranging from two to six, and observed and expected heterozygosities ranging from 0.125 to 0.375 (mean 0.013) and from 0.233 to 0.842 (mean 0.601), respectively. These polymorphic new microsatellite loci will be useful for genetic linkage map construction, germplasm classification and identification, gene identification and quantitative trait loci mapping, and marker-assisted selection in breeding in *L. usitatissimum*. [5]

2. Fifteen advanced lines of linseed (*Linum usitatissimum* L.) were evaluated to identify the relationship of grain yield and its related attributes during 2010-11 at Barani Agricultural Research Institute, Chakwal, Pakistan. Grain yield (kg/ha) had significant and positive association with plant height, number of primary branches plant¹, number of capsule plant⁻¹, number of grains capsule⁻¹ and 1000 grain weight both at genotypic and phenotypic levels. Therefore focusing on these traits would improve breeding efficiency of linseed in the future breeding programs. Path analysis demonstrated that plant height, number of primary branches plant⁻¹, number of capsule plant⁻¹, number of grains capsule⁻¹ and 1000 grain weight had the positive direct effect in determining the grain yield (kg/ha) in linseed. According to these results, breeding for high grain yielding cultivars of linseed, number of capsule plant⁻¹ should be kept in mind firstly followed by 1000 grain weight, number of grains capsule⁻¹, number of primary branches plant⁻¹ and plant height. [6]

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Precautions & Warnings:^[7]

- **Pregnancy:** Taking flaxseed by mouth during pregnancy is **POSSIBLY UNSAFE**.
- **Breast-feeding:** There is not enough reliable information about the safety of taking flaxseed if you are breast feeding. Stay on the safe side and avoid use.
- **Bleeding disorders:** Flaxseed might slow clotting. This raises the concern that it could increase the risk of bleeding in people with bleeding disorders. Don't use it, if you have a bleeding disorder.
- **Diabetes:** There is some evidence that flaxseed can lower blood sugar levels and might increase the blood sugar-lowering effects of some medicines used for diabetes. There is a concern that blood sugar could drop too low. If you have diabetes and use flaxseed, monitor your blood sugar levels closely.

- **Gastrointestinal (GI) obstruction:** People with a bowel obstruction, a narrowed esophagus (the tube between the throat and the stomach), or an inflamed (swollen) intestine should avoid flaxseed. The high fiber content of flaxseed might make the obstruction worse.
- **Hormone-sensitive cancers or conditions:** Because flaxseed might act somewhat like the hormone estrogen, there is some concern that flaxseed might make hormone-sensitive conditions worse. Some of these conditions include breast, uterine, and ovarian cancer; endometriosis; and uterine fibroids. However, some early laboratory and animal research suggests that flaxseed might actually oppose estrogen and might be protective against hormone-dependent cancer. Still, until more is known, avoid excessive use of flaxseed if you have a hormone-sensitive condition.
- **High blood pressure (hypertension):** Flaxseeds might lower diastolic blood pressure. Theoretically, taking flaxseeds might cause blood pressure to become too low in individuals with high blood pressure who are taking blood pressure-lowering medication.
- **High triglyceride levels (hypertriglyceridemia):** Partially defatted flaxseed (flaxseed with less alpha linolenic acid content) might increase triglyceride levels. If your triglyceride levels are too high, don't take flaxseed.
- **Low blood pressure (hypotension):** Flaxseeds might lower diastolic blood pressure. Theoretically, taking flaxseeds might cause blood pressure to become too low in individuals with low blood pressure.

INTERACTIONS WITH MEDICATIONS:^[7]

- **Medications that slow blood clotting (Anticoagulant / Antiplatelet drugs) interacts with FLAXSEED:** Flaxseed might slow blood clotting. Taking flaxseed along with medications that also slow clotting might increase the chances of bruising and bleeding.

Some medications that slow blood clotting include aspirin, clopidogrel (Plavix), diclofenac (Voltaren, Cataflam, others), ibuprofen (Advil, Motrin, others), naproxen (Anaprox, Naprosyn, others), dalteparin (Fragmin), enoxaparin (Lovenox), heparin, warfarin (Coumadin), and others.

- **Medications for diabetes (Antidiabetes drugs) interacts with FLAXSEED:** Flaxseed can decrease blood sugar levels. Diabetes medications are also used to lower blood sugar. Taking flaxseed along with diabetes medications might cause your blood sugar to be too low. Monitor your blood sugar closely. The dose of your diabetes medication might need to be changed.

Some medications used for diabetes include glimepiride (Amaryl), glyburide (DiaBeta, Glynase PresTab, Micronase), insulin, pioglitazone (Actos), rosiglitazone (Avandia), chlorpropamide (Diabinese), glipizide (Glucotrol), tolbutamide (Orinase), and others.

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