# Quality evaluation of flaxseed obtained from different locations

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IECPS 2020

## Abstract

**Abstract:** The aim of this study is to review the quality of flaxseed which are obtained from different geographical location. Geographic investigations of plant molecular variety can give substantial data of plant growth and upgrade plant germplasm, medicinal values, and the uses, yet such examinations are deficient in cultivated flax (*Linum usitatissimum* L.). There is a higher variety of generative plant parts seen by cultivated flax and more vegetative pieces of the plant were seen in pale flax fluctuates. Scope of variety, hereditarily based variety, heritability, and connection of a few characters are thought of, particularly concerning the impact of domestication. Higher developing season temperatures in different locations can impact the efficacy of agricultural, income of farm and food security. Postponement in planting prompted an expansion in natural temperature during conceptive development of harvest bringing about lower seed quality. The outcomes demonstrated that planting climate influence the development characters, yield, and its segment as well as the yield of oil. These findings are remarkable for understanding flax domestication and they are also helpful in grouping intraspecific variety of cultivated flax, setting up a center subset of the flax assortment, and investigating new wellsprings of qualities for flax improvement.

**Key words:** *Linum usitatissimum*; growth performance; cultivators;seed and oil yields; genetic diversity

## Introduction

The flaxseed commonly known as Alsi and biological source is *Linum usitatissimum* L. (Linaceae). The alluring, reddish-brown coloured oval seeds of flax add a charming nutty taste to items, additional surface and great sustenance to bread and other prepared products. During the vegetative and conceptive stage, it requires moderate temperature (21-27˚C) and high temperature (>32˚C) with dampness stress during blooming stage decreases seed yield. Flaxseed is rising as a significant oilseed in view of the presence of α-linolenic acid (ALA), 18:3n-3. It contains 35-45 % oil of which 45–52 % is ALA. Flax additionally conveys the advantages of its dissolvable fibre, lignans, omega-3 unsaturated fat blend and protein. The ALA decreases the danger of cancer, rheumatoid joint inflammation, osteoporosis and CVD disease. The advantages of omega-3 unsaturated fats to insects, horses, pigs, and different creatures might be in keeping youthful creatures from creating contaminations.

## Methods of cultivation

**Position in the pivot cycle**: To maintain a strategic distance from the weakening of the ground and the spread of cryptogamic illnesses, flax must not be developed in similar soil for more than six or seven years.

**Breeding:** L. usitatissimum L. species is a self-pollinated yield, and its hereditary improvement can be helped out through ordinary rearing strategies for hybridization and choice from one perspective or using new procedures, for example, haploidy, interspecific hybridization, change, tissue culture and change on the other continued in Canada, China, USA and other countries.

**Harvesting:** It is done in August-September when the plants arrive at the ideal maturing degree. Flax that is pulled too soon green-contains exceptionally fine yet feeble filaments. Then again, in overripe flax earthy coloured the stems are solid however fragile, creating a lot of unwanted short filaments significantly in the USA and China.

## Factor affecting the quality of the flaxseed

- The changes in the genotype will affect on the total seed yields.
- Keeping same soil or land for a long time.
- Sowing and harvesting majorly affects the quality of the seed.
- Climatic condition
- Temperature

## Outcome and Discussion

| Sr. No | Country | Area (lakh ha) | | | Production (lakh MT) | | | Yield (kg/ha) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2012 -2013 | 2013 -2014 | 2014 -2015 | 2012 -2013 | 2013 -2014 | 2014 -2015 | 2012 -2013 | 2013 -2014 | 2014 -2015 |
| | World | 25.72 | 22.97 | 26.01 | 20.62 | 22.99 | 25.65 | 802 | 1001 | 986 |
| 1 | Ethiopia | 1.28 | 0.96 | 0.82 | 1.22 | 0.88 | 0.83 | 955 | 920 | 1010 |
| 2 | USA | 1.36 | 0.73 | 1.26 | 1.47 | 0.82 | 1.62 | 1083 | 1123 | 1285 |
| 3 | India | 4.31 | 3.38 | 3.6 | 1.52 | 1.47 | 1.41 | 353 | 435 | 392 |
| 4 | China | 3.18 | 3.13 | 3.1 | 3.91 | 3.99 | 3.5 | 1228 | 1275 | 1129 |
| 5 | Russia | 5.58 | 4.38 | 4.42 | 3.69 | 3.26 | 3.93 | 661 | 743 | 890 |
| 6 | Canada | 3.84 | 4.22 | 6.21 | 4.89 | 7.31 | 8.72 | 1272 | 1731 | 1405 |

**Table 1.** Area, Production and Yield of Major Linseed Growing Countries

## Outcome and Discussion

Fibre flax is delivered in the temperate to cooler locales of Europe and Asia and a restricted degree. Linseed is cultivated in more than 50 countries.

Also, as per the data of the Siemens, 2017; the seeding of the flax was stared from the end of April and it was done by the mid-May. On that time there was drought-like condition also when the data was reported during the growing season. Approximately 90% of the crop was harvest by the middle of October.

The ideal cultivation or harvesting time of the plants is after the flowering stage. The highest active constituents can be obtained when it is grown in the temperature range 24-26˚C.

| S. No | Quality Parameter | Quantity |
|---|---|---|
| 1 | Oil Content | 45.7 |
| 2 | Protein Content | 22.5 |
| 3 | Iodine value | 191.5 |
| 4 | Free fatty acids | 0.2 |

**Table 2.** Contents of Canadian flaxseeds

| S. No | Quality Parameter | Quantity |
|---|---|---|
| 1 | Palmitic acid | 5.0 |
| 2 | Stearic acid | 3.5 |
| 3 | Oleic acid | 17.8 |
| 4 | Linoleic acid | 15.0 |
| 5 | α-Linolenic acid | 57.7 |

**Table 3.** Active constituents of Canadian flaxseeds

## Conclusion

The flaxseed shows a dramatic change in the pattern of the location, as it is showing a greater potent in the seed occurred from the cool climatic region comparison to the seeds obtained from the hot region. When it was planted in spring, flax develops rapidly by virtue of the positive stickiness and warmth around at that time. On the basis of reported literature, it was found that flaxseed obtained from the Canadian region shows greater quality. There is an almost 25% of world yield of flaxseed obtained from Canada and the content of the constituent is also high among other growing countries. Favourable harvesting condition for the growth and to extend the most of the active constituents from the flaxseed is based on the temperature and it is well grown in the temperature range of 24-26˚C. Thus, it has been concluded that the sample which was obtained from cooler climate was more potent and have more chemical constituents which will help in the further study of flaxseed.

## References

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