

Larix an Archaic Genus

Teena Agrawal*

School of Applied Science, Banasthali University, Rajasthan, India

Mini Review

Received: 28/08/2017

Accepted: 22/09/2017

Published: 26/09/2017

*For Correspondence

Teena Agrawal, School of Applied Science, Banasthali University, Rajasthan, India, Tel: 01438 228 383.

E-mail: tagrawal02@gmail.com

Keywords: Conservation, Extinction, Evolution, Distribution, Degradation, Threats, Assemblage

ABSTRACT

Gymnosperms are the plants of the remarkable evolutionary history; they have the great empire in the Mesozoic era, however at the beginning of the cenozoic, one can see the degradation in the vegetation (decline of the gymnosperm). In recent era the gymnosperms are presented by the cycadales (only 11 genera very endemic distribution) coniferales, Gnetales, they have the great assemblages (combination of the primitive as well as the advanced features or attributes) of the characters, in this review articles we are going to present one of the coniferales entitled as Larix. These plants have the long distribution in the European alps mountains forests), large belt of the lorchs forms the magnificent flora of the alps mountains (great physiognomy and the dominance are the peculiar features). However, in this era, in India (Himalayas belt) and the other part of the world these primitive reservoirs of the plants are going to be rapid degradation, so these plant lines needs conservation and propagation, so that the unique line of assemblage of primitive evolutionary characters (near to extinct) can be preserved. This review article represents some of the aspects of the Larix conifer and there threats and conservation.

INTRODUCTION

Gymnosperms are the naked seed plants, they have the huge empire in the Mesozoic era, and fossil assemblage of the preserved petrified forests shows the dominance of this remarkable world in that era. However, the gymnosperms show the declines and now they are restricted to the some of the places of the world like the northern hemisphere and the southern hemispheres, in India the belt are represented in some places like the Himalayas and Nilgiri and Uttarakhand area. They follow the diploid life cycles and beautiful Cones with sporangia and the female archegonia, however fruit habit never seen in this plant group. in gymnosperms coniferlaes are the only plant group which are dominated the earth in this era, they can be found in places of the world, this article is presenting the some of the aspect so of the Larix genus and their threats and conservation status.

Larix commonly known as the lorches, are very long lived fast growing tree, it is the typical coniferous tree having the characteristics growth pattern of the conifers, they occur abundantly in the central and the eastern Europe, these lorches generally formed the open forest in the Europe mountains ^[1].

Lorch forms the only decides forest of the Europe continent, the lorches are adapted to the deciduous kinds of the vegetation, Lorches are adapted to the all kinds of the adverse climates; they are well suited to the hard kinds of the winter season, they survive in the winter by the process of the defoliation all lorches are unisexual majority of the tree are monoecious, both of the sexes are presented on the same tree, the male cones are the 10-15 mm, long, they are Sulphur yellow, the margins of the cones are serrate.



Figure 1. *Larix decidua*.



Figure 2. *Larix decidua* cones.

The female cones are pinked colour or the dark purples, seed cones are about the 2.5 to 4 cm long, the seed cones persist in to the plant for the 10 years or long [2].

LITERATURE REVIEW

Distribution

The European lorch are widely distributed in to the mountains of the eastern, southern, and central Europe's, from south western to the Italy and Poland. The *Larix* species are the typical European conifers, they reach the height of the 45-50 meters, the life span of the tree are the 500-600 years, in the higher elevation the *Larix* species has the age of the 1000 years, here it is the slow growing and long living [3,4].

Species of the *Larix* occurs in wide range of the climatic conditions, some of them are the low lands subarctic plains, in valleys of the rivers, in cold mountains, the soil are affected by the permafrost, and the climate is subarctic, with severe cold winters [5].

Plant Habit

The *Larix* has many species, some are enlisted as: *Larix deciduas*, *L. griffthi*, *L. gmelini*, *L. kaempferi* (Japanese-lorch), *L. laricina* (American lorch), *L. mastersiana*, *L. occidentalis* (**Figures 1-3**).

The trunk is monopodial, straight, the diameter of the trunk is 3-4 meters, the bark is fissured, from dark below the reddish below, the needles are in the group of the 25-40 in a bunch, they are arranged on the long branchlet ^[6].

When any ecosystem of the forest disturbs than the Larix are the only species of the ecosystem which the ecosystem pioneers in the forest, so they are the early colonizers in the ecosystems ^[7].

They form the pure strands of the forest species, with the other alpiners vegetation, in the alpine vegetation the Larix forms the main wood of the silviculture's, due to the resistance towards the adaptability and resistance towards the weather ^[8].



Figure 3. Larix species.

Phylogeny of the Larix

One of the first attempt for the phylogenetic evaluation of the Larix has been done by the Bobrov, and Lepage and basinger, they discuss the following kinds of the phylogeny of the Larix ^[9-11].

a) Ancestral Larix: species with exserted bracts,

L. occidentalis

L. potaninni

L. griffitiana

L. masterniana

b) Species with non exserted bracts

L. laricina

L. decidua

L. sibirica. L. gemelini

However, till 2007 five other work on the phylogeny of the genus has been done, these are enlisted as Semerikov and Lascoux, utilises the isozymes technology, Gernandt and Liston analyse the nuclear ribosomal DNA (nrDNA) internal transcribed spacer (ITS) region in 7 species of Larix, used pollen cpDNA to split 12 species of Larix into three sister clades, Gros-Louis went deeper, using genetic markers from the nuclear, chloroplast, and mitochondrial genomes to study ten species. These are the some of the short summary of the work on the Larix ^[12-15].

DISCUSSION

Uses of the Larix

1. The Larix is economically and traditionally important wood, these forms the magnificent timber liens of the Europe.
2. The leaves grow very fast. so, they utilize for the medicinal purposes.

3. High adaptable to the adverse conditions.
4. The wood is very durable.
5. The sapwood is totally different form the heartwood, the color and the texture of the wood is also very different, which is according to their utilization.
6. The wood is hard and they have the very fine fragrance, due to this they are utilized for the different purposes.
7. The tannins and the resin contemns of the woods is also very high about the 10 percent, for this they are utilized for the various purposes.
8. The wood is also very durable under water stress conditions.
9. The Larix wood is largely used for the construction of the different substances and the many kinds of the furniture's.
10. In the European mountains the wood is used for the formation of the wooden houses.
11. The wood is used for the formation of the wooden floor and the furniture of the various kinds.
12. The wood is used for the formation of them any wooden structures like the gates and the door and the other wooden appliances.
13. The Larix is used for the pulp wood. The larch resin is used as the traditional medicines for the treatment of the many kinds of the diseases.
14. Form the larch tree turpentine is extracted, which also the sources of the various kinds of the drugs and the medicines.
15. The larch essentials oils are sources of the various kinds of the medicines.
16. The larch wood is used for the formation of the o one of the musical instrument known as the ALPHOM; it is the large devices, which is used for the music purposes, however traditionally it was used as the transmission of the knowledge form one mountain to another mountain.

However, the whole of the Larix is of variety of uses, they are the worshipped god tree for the tribal peoples of the alps mountain forests ^[16-18].

CONCLUSION

Conservation

IUCN red data lists declared that plant as endangered (2006), after the continuous logging and utilization of the tree for the various purposes in different part of the world, since in the Europe and the other part of the world these trees are utilised for the construction purposes, and the regeneration of the tree is not coincided with the other kinds of the growth parameters of the tree. Logging of the tree is considered as the main factor for the degradation of the genus in China, Japan, America and other part of the world, so these beautiful and evolutionary beneficial lines of the evolution needs the conservation for the reservoirs of the genotypes and the other main uses of the tree.

REFERENCES

1. Bobrov EG. Kratkiy obzor vidov Listvennits- Synopsis specierum generis Larix Miller. Novit Syst Pl Vasc. 1972;9:4-15.
2. Ronch F Da, et al. *Larix decidua* and other larches in Europe: Distribution, habitat, usage and threats. 2001.
3. Farjon A. *Larix gmelinii*. The IUCN red list of threatened species. 2013.
4. Farjon A. *Larix laricina*. The IUCN red list of threatened species. 2013.
5. Farjon A. *Larix lyallii*. The IUCN red list of threatened species. 2013.
6. Farjon A. *Larix occidentalis*. The IUCN red list of threatened species 2013.
7. Farjon A. *Larix sibirica*. The IUCN red list of threatened species 2013.
8. Gernandt DS and Liston A. Internal transcribed spacer region evolution in Larix and *Pseudotsgua* (Pinaceae). Am J Bot 1999;86:711-723.
9. Gower Stith T and James HR. Larches: Deciduous conifers in an evergreen world. BioScience. 1990;40:818-826.
10. Katsuki T and Luscombe D. *Larix kaempferi*. The IUCN red list of threatened species. 2013.
11. LePage BA and Basinger JF. The evolutionary history of the genus Larix (Pinaceae). The evolutionary history of the genus Larix (Pinaceae). 1995;19-29.

12. Schmidt-Vogt H. Die Fichte: Ein Handbuch in zwei Banden. Band I: Taxonomie, Verbreitung, Morphologie, Ökologie, Waldgesellschaften. Hamburg- Berlin, Germany. 1977.
13. Semerikov VL and Lascoux M. Genetic relationship among Eurasian and American Larix species based on allozymes. *Heredity*. 1999;83:62-70.
14. Thomas P and Zhang D. *Larix mastersiana*. The IUCN red list of threatened species. 2013.
15. Wei XX and Wang XQ. Phylogenetic split of Larix: Evidence from paternally inherited cpDNA trnT-trnF region. *Plant Syst Evol*. 2003;1-2:67-77.
16. Wei XX and Wang XQ. Recolonization and radiation in Larix (*Pinaceae*): Evidence from nuclear ribosomal DNA paralogues. *Mol Ecol*. 2004;13:3115-3123.
17. Yang Y and Christian T. *Pseudolarix amabilis*. The IUCN red list of threatened species. 2013.
18. Zhang D and Luscombe D. *Larix potaninii*. The IUCN red list of threatened species. 2013.