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Study of the ecological status of Iranian yew herbal towards its revival in Iran and the word in recent years

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ABSTRACT

Considering forest from the perspective of sustainable development and the need for maintaining tree species as genetic resources is priority; so identification and evaluation of forest's habitat conditions are the main parts of sustainable development. The study of ecological conditions of different species gives some basic and important information which leads to be applicable in optimizing the management of forest resources .This study aims to identify the Ecological status of yew, the main factors affecting the ecological distribution restrictions of Yew and establish a new life. In recent years, its affiliated agents and the world have been analyzed. And Cutting trees in order to prevent livestock toxicity has been identified as the most important causes of extinction. We can protect the forests by supposing some scheme for solving social and economical problems and giving facilities such as protecting forests by officers.

Keywords : Extinction, ecology, conservation, Taxusbaccata (Taxaceae), plant protection, Population regeneration

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INTRODUCTION

Yew is a bipod tree with light grayish fawn color and sinusoidal trunk .Leaves are elongated and narrow with dark and light green in surface and back, respectively. The male flowers have 6-14 stamens and its edible fruit looks like the sweet red berries called Ariel. [2].

Ecological Yew grows in any soil but mostly in acid soils. Its favorite location is in valley and relatively dark and damp because it is schattenbaumart herbal. The severe cold hurts it and the Humidity should be high. [2].

The reproduction of Yew trees happens in early spring due to the pollen. The Seeds maturate in August and are distributed by birds. Seed germination is erratic and sometimes it takes long for two or three years. In laboratories, the seeds have good growth in 15 ° C. There is no enough information about its diseases and insect damage on Yew. Also there are some reports about the damages of drought, air pollution and salinity on Yew. [2]

Only one species of this genus, Taxus baccata L., exists in Iran which grows in northern parts of Iran. Yew is one of the unique and rare species in the world remains from the Tertiary geology which exists in southern coast of the Caspian Sea and Hyrcanian forests.
Yew is the Masterpiece of northern forests of Iran which is threatened to extinction. It extends in 900-1800 meters above sea level from Astara[1] to Ali Abad[2], and can be found in Zarrin Gol(golden flowers) area as a forest i.e., some composed masses of golden. [1]

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[1] *City in north of Iran, belongs to Gilan*

Afratakhteh Mountain in Aliabad Katul is one of the few sites of Yew in northern forests that contains some old trees with even more than 1000 years old and announced as a genetic resources in 1992.

In Iran, Communities of Yew in Mazandaran and Gorgan forests are Fageto-Taxetum yew species and Euonimo-Taxetum respectively.

The extension of yew trees is in most European countries, even England, southern Norway, south of Sweden and up to 61 on north degrees and Baltic countries and Alps mountains up to 1400 m height above sea level and in Caucasus mountains, Kaparat, Turkey and northern forests of Iran, and North Africa.
In recent years, needs for phitocytology Studies on rare and native northern forests of Iran species is identified in order to obtain comprehensive information about Ecological requirements of these species for protection, conservation, rehabilitation and development ; And the relationship between sociology of famous yew known as Taxus yews has specific importance. In this study, we are going to have a brief view on the status of Yew and considering the main factors affecting the ecological distribution restrictions of Yew and establish a new life.

MATERIALS AND METHODS

This study aims to give some information about the potential of Yew in Iranian and world forests and the qualitative and quantitative positions of Yew from past to present which lead to Forecast the future of this herbal.

Background of the study on the role of environmental effects on extinction of Iranian Yew
Several studies have done on Yew by different countries as follows:
hulme (1996) claimed that the reasons of decrease in Yew are climate changes, release of beech and hornbeam seeds, the effects of livestock grazing such as cows, animal hunting, human and changing in forest management. He also indicated that increase in Askub distribution causes revitalization do not occur in Yew. [6]

Tittensor (1980) studied on the ecological history of southern England claimed that Yew decreased unusually after an ice period but increased normally with forests' activities. [14]

Hulme studied on the revitalization and limitations of grass plants on Yew's seeds and the studies of Spur showed the effect of soil destroys and loss of minerals in soil on European Yew. [6]

Background of the study on the reason of extinction in Iran
Many studies have done on the ecological conditions of yew species in Iran's northern forests as follows:
Karami 's studies (2006) on ecological conditions of Yew, Dargahi's Studies (2000) on the Ecological Community of yew species, Husseini's study on ecological power of habitats native of Iranian Softwoods including yew by focusing on the implications of regeneration and human factors, and also Qanbari et.al 's study (2010) on development of Yew in Arasbaran habitat and reaching to Climax communities. [3, 7, 13]

The Expert of Natural Resources Research Center of Golestan's Agricultural and Resource organization said: among the different species of medicinal plants, yew is endangered due to over-harvesting[2] This tree is important in terms of drug usage and wood. And most farmers cut it because of its toxin which leads to Animal toxicity.

Recommended methods for revitalization and keeping away from extinction
In 1984, by studying the Yew and other species, Pridnya claimed that there is a relationship between the reduction of Yew and incensement of hardwoods and appeal the necessity of to artificial revitalization. [11]

Garicia & et.al (1999) claimed the effect of grazing and Protective role of grass and woody plants in protecting the revitalization of Yew .[2]

RESULTS AND DISCUSSION

According to the internal and external reports of experts, only 200 acres of Conifers Yew's genetic resources have been remained. Yew is one the ecological value of Arasbaran, name of the area in Iran. Yew grows better than Avery Oak and hornbeam in shade. [12] in height (less than 130) 130 < in two areas including Kolale and Kuran, growing was considerably high due to the water , soil and organic materials in compare with other species. And in height <130 (up to 130), that was low due to the high distribution and less nutrition because of competition among seedlings. .[12]

[2] *City in north of Iran, belongs to Golestan*

It is inferred from the results that the best distribution and expansion of yews depend on Northern seeds and then sub-aspects are related to it. Also in lower slopes (30%) on the base of acres, the frequency and any qualitative aspects of Yew are not appropriate. In the number of acres, frequency and qualitative characteristics of yew are desirable conditions. In The 51-60 slope classes the percentage will increase and in higher percentage (up to 70%) the distribution will be deleted.[12]

By supposing some scheme for solving social and economical problems and giving facilities such as protecting forests by officers, we can protect the forests.

Due to the economic structure of community who subsist with farming and livestock in one hand and as the forest are in Highland and Impassable area with special geographical conditions on the other hand, revitalization of forest is hard and sometimes impossible. In recent years, also the unprecedented growth in population and increase in the number of livestock and deforestation for developing agricultural land and reaching fuel and cause abuse in exploitation of forests. So protecting the forest can be successful by livestock ejection from the forest and preventing soil erosion (quoted in [8]).

Studies of Mosaddeq (1972) showed that the reason of reduction in Yew's reproduction is the reduction of falling groundwater levels. Nowadays, the yew is used because of the importance of the role of green space against air pollution, especially Co2. [7]

Generally yew is resistant species and grows in a wide range of environmental conditions. In compare with hornbeam and oak, yew grows better in the shade and closed canopy[3]. Other species with fewer than 130 cm height are destroyed, because of the dense canopy and lack of the light and have a high density. So they can't gain nutrient and extinct in compare with higher plants.[11]

Studies on habitat revitalization showed that the decrease in reproduction of Yew in the average height of 1400 meters above sea level in Kolaleh and Kuran .[11] Farris et al (2012) studies showed that there is the most revitalization in northern slopes and the less is in northeast. [5]

The best concordances class for Yew growing in both areas, Kolaleh and Kuran, are 51-60 and 41-50 respectively, with a total percentage of 46.68% and 58%; And the reason is increase in stratified soil moisture and slope classes in the level of surface soil. Also, studies of grass cover showed decrease in the frequency of Yew revitalization with increase in grass cover; and the major factor for this is absence of animal .

According to studies on the normal form of resurgence of nature of yew in Kolale and Kuran, the predominant form of yew habitat is Coppice forests in seed and Coppice forests.the Frequency of Coppice is of the results of more power in the species especially, oak and ash and many other species in a particular.

Studies of Pyaam showed that the masses of Yew were Coppice forests in seed which were turned to Coppice forests. [12] Barzegar concluded that the effect of livestock and cutting trees (excision trees) for farmers usage in Kuran lead to have Coppice forests. [1]

Studies of Ismail zadeh et al (2009) study showed that the distribution of hornbeam Yews and Ficus bengalensis L. are influenced by slope factors and also the importance of plant communities in conservation of biodiversity; and hence ecosystem balance are crucial.

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