

Some endangered healings plants in Bulgaria – legislative regulation, protection, characteristic description, application, agricultural cultivation

Iliyana Yaneva^{1*}, Valentin Balabanski², Tatiyana Karanesheva¹ and Ignat Ignatov³

¹National Center of Public Health and Analyses, 1413 Sofia, Bulgaria

²Acibadem City Clinic, 1407 Sofia, Bulgaria

³Scientific Research Center of Medical Biophysics (SRCMB), 1111 Sofia, Bulgaria

*Corresponding author: iianeveva2402@gmail.com

Abstract

Yaneva, I., Balabanski, V., Karanesheva, T. & Ignatov, I. (2020). Some endangered healing plants in Bulgaria-legislative regulation, protection, characteristic description, application, agricultural cultivation. *Bulg. J. Agric. Sci.*, 26(4), 847–852

The state policy in our country regarding the activities in connection with the protection and the sustainable use of healing plants, their conservation and preservation of protected areas as a special form of protection of local environment, supporting of biological and landscape variety, and improving the state of population of wild flora species, fauna and mycota of forestry territories are regulated from Medicinal Plants Act (2000), Protected Areas Act (1998), Biodiversity Act (2002), Forest Act (1997, 2013). The purpose of current publication is to examine Bulgarian normative documents referring to protection and use of some endangered healing plants with application in our modern and ancient phytotherapy: Liquorice (*Glycyrrhiza glabra* L.); Rose-root (*Rhodiola rosea* L.); Yellow gentian (*Gentiana lutea* L.); characteristic description, industrial application and agricultural cultivation.

There are unique healing plants growing in our country, which have status of „endangered species“. The main negative factor for decrease in their population is their use as healing plants. In order to preserve their natural habitat it is necessary to develop technologies for their domestication and agricultural crop cultivation.

Keywords: endangered healing plants; normative documents; protection; characteristic description; agricultural crop cultivation

Introduction

Significant role in the state policy of Bulgaria is given to the problems for placing under protection the populations of rare and endangered plant species, and the measures for their preservation. The protected areas¹ are a special form of protection of local environment.

¹ Protected areas are intended to safeguard biodiversity in the ecosystems and the natural processes taking place inside them, as well as particular or extraordinary objects of the inanimate nature and landscapes (Protected Areas Act, 1998).

«Endangered plant species» are the ones in danger of extinction throughout all or substantial part of its range (Protected Areas Act, 1998; Biodiversity Act, 2002). “Rare species” are the ones with scarce populations, dispersed or dependent on specific factors, and if not directly, they are indirectly or potentially endangered (Protected Areas Act, 1998; Biodiversity Act, 2002). In order to preserve the natural habitat of plant species from the wild flora, they need to be placed under regime for protection and regulated use (Biodiversity Act, 2002; Biodiversity Support Program, 1994). For protected are declared different species of wild

plants that are rare or in danger of extinction (Law on Nature Protection, 1967). Separate species of forest fruits and other plant species are placed under special regime for protection and use by Order of the Minister for the Environment and Water, promulgated in State Gazette annually (Medicinal Plants Act, 2000).

In the current publication are addressed some healing plants used in our country for medicinal and prophylactic purposes, subject to the provisions of Biodiversity Act (2002) and Medicinal Plants Act (2000) and having status of „endangered species“.

The use of endangered species as healing plants in the official and folk medicine from ancient times additionally increases their vulnerability (Modern phytotherapy, 1982; Materials for Bulgarian Botanical Guide 1939). Their status of endangered plants prohibits their picking, cutting, and grubbing-up in their natural spread areas. In order to be applied in the medicine at home, these plants need to be cultivated or have their import guaranteed from other countries.

The purpose of current publication is to examine Bulgarian normative documents referring to: protection and use of some endangered healing plants, subject to the provisions of Biodiversity Act (2002) and Medicinal Plants Act (2000) and are included in the Red Book of Bulgaria; their characteristic description², their application in the ancient and modern Medical science; their agricultural crop cultivation in order to protect their population and to satisfy the needs of different types of industries.

Materials and Methods

Documentary method is applied – overview and analysis of normative regulations referring to safeguard and use of some placed under protection healing plants at home; research of different manuscripts of medical folk books, scientific articles and monographs regarding the application of these endangered healing plants in the ancient and modern Medical science, and their agricultural crop cultivation.

Results and Discussion

Bulgarian legislation has always played fundamental role in the protection of nature. The Medicinal Plants Act (2000) provides for the management of activities with regards to

² Within the meaning of this research, the characteristic description includes – botanical description, spread, phytochemical contents, impact on human health.

protection and sustainable use of the healing plants³. In the Law is presented a List of healing plants under special regime of protection and use, which is annually determined by an Order of the Minister for the Environment and Water. For 2019 the Order № 88 of 30.01.2019 includes 11 healing plants with restrictive and 24 healing plants with prohibitive regime for protection and use. The preservation of representative for Republic of Bulgaria and Europe species of natural habitats, and habitats of endangered, rare and endemic plant species within the framework of National ecological network, is regulated in our country by the Biodiversity Act (2002).

Some endangered healing plants in Bulgaria-legislative regulation, characteristic description, applications, agricultural cultivation

Liquorice (Glycyrrhiza glabra L.), Family Fabaceae

Liquorice is with a conservation status of endangered species according to Biodiversity Act (2002).

Botanical description. Liquorice is a perennial herbaceous plant. The rhizome is thick, short, with unrooted cuttings. The stem is in upright position, with height around 50-100-200cm, glandular fibrous, reddish in colour. The leaves are consecutive, pinnate leaves, with elliptical egg-shaped leaflets, 9-17 in number. The flowers are produced in a loose inflorescence, located at the leaf bases and on the tops of the offshoots. The corolla is pinkish violet, purple, with the receptacle being shorter than corolla. The fruit is glandular fibrous, oblong pod. The seeds are round, greenish in colour ((Red Book of Bulgaria, Part One (1984, 2011), Flora of The People’s Republic of Bulgaria (1976); Modern Phytotherapy (1982)). It reproduces vegetative and by seeds (Red Book of Bulgaria, Part One, 1984, 2011; Modern Phytotherapy, 1982)). It flowers during June-July (Modern Phytotherapy, 1982).

Spread. In our country Liquorice grows in grassland in Danube plain, near the river Danube and others (Red Book of Bulgaria, Part One, 1984, 2011; Modern Phytotherapy, 1982). It is native to Central and Southwestern Asia and the Mediterranean region. It is naturalized at places in Southern and Eastern Europe (Red Book of Bulgaria, Part One, 1984, 2011, Modern Phytotherapy, 1982).

³ Healing plants” are the ones, which can be used to obtain herbs. “Herbs” are separate morphological plant parts or whole plants, as well as fruits and seeds from them in fresh or dried condition intended for healing and prophylactic uses, for production of medicines, nutritional, cosmetic and technical purposes (Medicinal Plants Act, 2000).

Factors with negative impact. For the exhaustion of the plant from its natural habitat play role the following factors: the main parts of its habitats are located in populated settlements and in areas with agricultural activity. The use of the roots of the plant for healing purposes leads to its uprooting and reduction of its quantity in its natural habitats (Red Book of Bulgaria, Part One, 1984, 2011). In order to preserve its kind it is declared as one of the endangered species and put under protection of Biodiversity Act (2002).

It is necessary to introduce the plant as a culture, and its agricultural crop cultivation in order to satisfy the needs of pharmaceutical industry. At present it is imported at home as a cultivated culture from India and China.

The needs of different types of industries are used peeled and unpeeled dried roots from the plant (Modern Phytotherapy, 1982).

Liquorice contains triterpene saponines, as the main one of them is 6–12% glycyrrhizin, potassium-calcium salt of 18 β -glycyrrhizic acid (Dastagir & Rizvi, 2016) giving sweet taste of the drug; flavonoids; coumarins; etc. (Modern Phytotherapy, 1982; Asenov & Nikolov, 1988; Fenwick et al., 1990; Isbrucker & Burdock, 2006; Zhang & Ye, 2009).

Application. Liquorice is used in pharmaceutical, confectionary and painting industries.

Liquorice has anti-ulcer, expectorant, pectoral, diuretic, laxative, anti-infectious, antispasmodic, antidepressive, antidiabetic and other effects (Dastagir & Rizvi, 2016; Modern Phytotherapy, 1982).

Liquorice serves as a flavouring agent, sweetening the bitter taste of many medicines (Davis & Morris, 1991).

In Bulgarian traditional medicine Liquorice infusion is recommended for: chronic cough; inflammation and pain in bladder and kidneys, urinary sand and kidney stones, stomach and liver ache, constipation; as a diuretic remedy (Materials for Bulgarian Botanical Guide, 1939). In case of prolonged intake (of Liquorice), it is observed increased blood pressure in hypertensive patients, appearance of swellings (Modern Phytotherapy, 1982).

The plant is a priority species and has to start being used for mass cultivation in the agriculture, in order to meet the requirements of local markets and pharmaceutical industries, as in such a way will be preserved its natural habitat.

Rose-root (Rhodiola rosea L.), Family (Crassulaceae)

According to Biodiversity Act (2002) the species is critically endangered.

Botanical description. Perennial dioecious herbaceous plant with short, fleshy rootstock, covered with triangular, sharp, membranous flakes, rose-flavoured (Modern Phytotherapy, 1982; Horological Atlas of Medicinal Plants in Bul-

garia, 1995). The flowering shoots are several or multiple, in upright position, 25–30 cm in height, 4–5 mm in diameter. The leaves are round oval and sometimes linearly elongated, sessile leaves, green or reddish blue in colour, at the bottom almost whole, at the topcrenated bare leaves. The clusters are peltate, multi-coloured, located at the top of the stem (Modern Phytotherapy, 1982; Horological Atlas of Medicinal Plants in Bulgaria, 1995).

The flowers are with long stalks, unisexual, usually pale pink, yellow or dark yellow, the male flowers are with longer than the petals stamens, the female ones are with curved germen. The fruits are branched together, 6–8 mm long, linear-lanceolate, with a long and thin tip – husk with many seeds. It flowers during May–June, starts bearing fruit in June–July. It reproduces vegetative and by seeds (Flora of The People's Republic of Bulgaria, 1970; Modern Phytotherapy, 1982; Horological Atlas of Medicinal Plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011).

Spread. Rose-root grows in our country at stony and rocky grounds onto the higher parts of the mountains – Middle Old Mountain, Rila, West Rhodope Mountain at an altitude up to 2600 meters (Modern phytotherapy, 1982; Horological atlas of medicinal plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011). Rose-root grows at high grounds (at an altitude up to 2280 m) in the Arctic and mountain areas in Europe, Asia and North America (Panossian et al., 2010).

Factors with negative impact about its populations: picking of Rose-root as a healing plant through its uprooting for personal needs from its natural habitats, keener interest from the pharmaceutical industry, and low density of its populations (Horological Atlas of Medicinal Plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011).

Application. Rose-root is relatively rare medicinal plant (Panossian et al., 2010). Rose-root is applied in the pharmaceutical and in agro-food industry (Modern phytotherapy, 1982).

Usable part. Roots and rhizomes are collected from the plant in the month of October or at the beginning of spring. The dried rhizomes and roots have bitter-astringent taste, and smell of rose oil (Horological Atlas of Medicinal Plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011). From roots and rhizomes from its species are isolated phenol compounds and their glycosides (rhodioloside), glycosides of cinnamon alcohol – rosin, rosavin, rosarin; monoterpene glycoside – rosiridin; cyanogenic glycosides; flavonoids, essential oil, tannins, organic acids, etc. (Modern Phytotherapy, 1982; Asenov & Nikolov, 1988). The pharmacological and healing properties of Rose-root are species related phenomena (Kelly, 2001; Yousef et al., 2006).

Rose-root improves the mental and physical performance (Modern Phytotherapy, 1982). Rose-root is traditionally used as an “adaptogen” for increasing of physical and mental performance in healthy population (Panossian et al., 2010). It is established from authors that extracts from Rose-root have anti-inflammatory, immune stimulating, anticancer effect in different model systems (Li et al., 2017).

In Bulgarian folk medicine infusion from the plant is used for washing and treatment of wounds from foot-and-mouth disease in cattle; as an adstringent in diarrhoea; for increasing of milk production in nursing mothers (Materials for Bulgarian Botanical Guide, 1939). Traditionally in different cultures Rose-root is a medicinal plant for treatment of headache, hysteria, with beneficial effect for symptoms of altitude sickness (Panossian et al., 2010). Nowadays extracts from Rose-root are sold in the form of food supplements as an adaptogenic agent (Panossian et al., 2010). Extracts from Rose-root are applied as food supplements for healthy people including sportsmen, for nonspecific increase of natural body resistance to physical and behavioural stress factors (Li et al., 2017; Panossian et al., 2010).

In order to preserve the plant in its natural habitats it is required to introduce its species as a culture, and its agricultural crop cultivation, in order to be satisfied the market needs. It is necessary to have rigorous control over the use of plant’s natural habitats (Red Book of Bulgaria, Part One, 1984, 2011).

Yellow gentian (Gentiana lutea L.), Family Gentianaceae

Yellow gentian is from the endangered species according to Biodiversity Act (2002).

Botanical description. Perennial herbaceous plant (Franz & Fritz, 1978). The rhizome is thick, vertical, shortened to 20 cm in diameter, with sterile cuttings, yellow brown. The stem is in upright position, usually single with no offshoots, round, hollow, bare, with height around 40-50-80-100-150 cm. The leaves are opposite, cross alternating, broad lanceolate to elliptic leaves. The base leaves are 10–20 cm long, broad around 5-10 cm, with 4–5 streaks, short stalk, lanceolate to oval lanceolate shaped, whole, the stem leaves are smaller in size, basal, all of them with long veins. The flowers are located in groups mainly at the buds of the upper leaves. The cup is tubular, leather-like, half the size of corolla. The corolla is bright yellow, 16–18–25 mm long. The fruit is oblong, 10-12 mm long, husk with many seeds, elongated-lanceolate. The seeds are light to dark brown, round, wide-leafed cy-

posters. It blossoms during July–August. It reproduces by seeds and vegetative (Flora of The People’s Republic of Bulgaria, 1982; Horological Atlas of Medicinal Plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011; Modern Phytotherapy, 1982).

Spread. In our country Yellow gentian grows over stony slopes or mountain pastures and meadows, situated near the upper border of the forest, over siliceous or calcareous rocky soils. The plant has limited populations in Old Mountain, near Vitosha, Pirin, Rila, Rhodope Mountains; at an altitude between 1200–1600 and 2150 m. Yellow gentian is widely spread all over Europe, in Central and Southeastern Europe, Iberian Peninsula, the islands of Corsica and Sardinia, Balkan Peninsula. The species goes all the way to Anatolia and India (Horological Atlas of Medicinal Plants in Bulgaria, 1995; Red Book of Bulgaria, Part One, 1984, 2011; Modern Phytotherapy, 1982).

Towards the factors with negative impact are included: picking of plants as healing species leading to its uprooting, the development of mountain tourism, and the limited spread of the plant (Red Book of Bulgaria, Part One, 1984, 2011). Yellow gentian is used in phytotherapy, in Western European countries is still widespread its use for production of bitter distillates, for liqueurs in commercial network (Franz & Fritz, 1978; Modern Phytotherapy, 1982).

The usable parts of the plant are the roots of Yellow gentian. They contain bitter glucosides with secoroid structure (main component is gentiopicroside with pronounced bitter taste by a 1:20000 dilution), pectins, tannins, small amounts of mucus, essential oil, etc. (Modern Phytotherapy, 1982; Asenov & Nikolov, 1988).

The effect of Yellow gentian is appetite-stimulating, generally strengthening, antimicrobial (Modern Phytotherapy, 1982; Šavikin et al., 2009).

In Bulgarian folk medicine the Yellow gentian is called “bitter gentian”, “bitter root”, which is connected to its bitter taste. It is described as a meaning for stimulation the activity of digestive tract; it improves the appetite; it is applied for – diarrhoea, dysentery, malaria, tuberculosis, blood spitting, hepatitis, bronchitis, tracheitis; and others. Yellow gentian infusion has general strengthening effect over the nervous system, and it is used for vertigo, hysterical seizures. From the plant are prepared dressings for treatment of furuncles, purulent wounds (Materials for Bulgarian Botanical Guide, 1939).

In order to protect the species in its natural habitats in our country it is necessary to crop cultivate it for agriculture, and its import as a raw material from other countries (Horological Atlas of Medicinal Plants in Bulgaria, 1995).

For agricultural producers willing to grow Yellow gentian in their farms are developed recommendations regarding technologies for breeding of the plant (Radanović et al., 2013, 2014). In 1970 is developed a method for cultivated growing of Yellow gentian that is economical and technologically advanced from horticulture's point of view (Franz & Fritz, 1978). In an experimental program AGRIMED, which took place in Italy in 1985-1989 the Yellow gentian plants coming from different parts of Europe were grown in different parts of the country – Vallarsa-Trento; Passo Cento Croci-Parma; Passo Godi-L'Aquila. The results achieved from this program are different for the three growing areas. The best results are achieved in the area located in the north – Vallarsa-Trento, (Alessandro & Nicola, 1993).

Conclusions

The current legal mechanisms for protection of wild flora in our country are presented in Biodiversity Act (2002) and Medicinal Plants Act (2000), and the statutory mechanisms for preservation of ecosystems and habitats are presented in Protected Areas Act (1998), Biodiversity Act (2002), Forest Act (1997, 2013), Yaneva-Balabanska (2013).

There are unique healing plants growing in our country with „endangered species” status. One of the main negative factors for decrease of their populations is their use as healing plants. In order to preserve the natural habitat of the endangered healing plants, it is necessary to introduce them as a culture and their agricultural crop cultivation.

References

- Alessandro, B. & Nicola, A.** (1993). The cultivation of yellow gentian (*Gentiana lutea* L.) on the pre-Alps and Appenninic Mountains: results and application (1). *Acta Hort.*, 331, 19-26. DOI: 10.17660/ActaHortic.1993.331.3. <https://doi.org/10.17660/ActaHortic.1993.331.3>
- Asenov, I. & Nikolov, S.** (1988). Pharmacognosy book. Publishing House "Medicina i Fizkultura", Sofia, 466 (Bg).
- Biodiversity Act** (2002). Promulgated SG No.77 of 9 August 2002 (Bg).
- Biodiversity Support Program** (1994). Conserving Biological Diversity in Bulgaria: The National Biological Diversity Conservation Strategy7. Washington, D.C.: Biodiversity Support Program c/o World Wildlife Fund (Bg).
- Dastagir, G. & Rizvi, M.** (2016). Review – Glycyrrhiza glabra L. (Licorice). *Pak. J. Pharm. Sci.*, 29(5), 1727-1733.
- Davis, E. A. & Morris, D. J.** (1991). Medicinal uses of licorice through the millennia: the good and plenty of it. *Mol. Cell Endocrinol.*, 78(1-2), 1-6.
- Fenwick, G. R., Lutomski, J. & Nieman, C.** (1990). Licorice, *Glycyrrhiza glabra* L. – Composition, Uses and Analysis. *Food Chemistry*, 38(2), 119-143.
- Flora of the People's Republic of Bulgaria** (1970). Publishing House of Bulgarian Academy of Sciences. ed.: D. Yordanov, St. Kojucharov, Sofia, IV, 748 (Bg).
- Flora of the People's Republic of Bulgaria** (1976). Publishing House of Bulgarian Academy of Sciences. ed.: D. Yordanov, S., VI, 592 (Bg).
- Flora of the People's Republic of Bulgaria** (1982). Publishing House of Bulgarian Academy of Sciences. St. Kojucharov, S (ed.), VIII, 518 (Bg).
- Forest Act** (1997). Promulgated SG No.125 of December 29, 1997 (Bg).
- Forest Act** (2011). Promulgated SG No.19 of 8 March 2011 (Bg).
- Franz, Ch. & Fritz, D.** (1978). Cultivation aspects of *Gentiana lutea* L. *Acta Hort.*, 73, 307-314. DOI: 10.17660/ActaHortic.1978.73.39 <https://doi.org/10.17660/ActaHortic.1978.73.39>
- Horological Atlas of Medicinal Plants in Bulgaria** (1995). Academic Publishing House "Prof. Marin Drinov", S., Ivan Bondeev (ed.), 264 (Bg).
- Isbrucker, R. A. & Burdock, G. A.** (2006). Risk and safety assessment on the consumption of Licorice root (*Glycyrrhiza* sp.), its extract and powder as a food ingredient, with emphasis on the pharmacology and toxicology of glycyrrhizin. *Regul. Toxicol. Pharmacol.*, 46(3), 167-92.
- Kelly, G. S.** (2001). *Rhodiola rosea*: a possible plant adaptogen. *Altern. Med. Rev.*, 6, 293-302.
- Law on Environmental Protection** (1991). State Gazette No. 86, 18 October 1991 (Bg).
- Law on Nature Protection** (1967). State Gazette No. 47, 16 June 1967, Amended and supplemented, SG No.29 of 7 April 2000. As a backup, in force until 12 August 2002, Repealed SG No.77 of 9 August 2002 (Bg).
- Li, Y., Pham, V., Bui, M., Song, L., Wu, Ch., Walia, A., Uchio, E., Smith-Liu, F. & Zi1, X.** (2017). *Rhodiola rosea* L.: an herb with anti-stress, anti-aging, and immunostimulating properties for cancer chemoprevention. *Curr. Pharmacol. Rep.*, 3(6), 384-395.
- Materials for Bulgarian Botanical Guide** (1939). Collected by B. Davidov and A. Yavashev, Arranged by M. Shosev and P. Balabanov, supp. and edited by B. Ahtarov, Sofia, Publishig House, Court Printing House, 575 (Bg).
- Medicinal Plants Act** (2000). Promulgated SG No.29 of 7 April 2000 (Bg).
- Modern Phytotherapy** (1982). Under the edition of the Corresponding Member Prof. V. Petkov. Publishig House "Medicina i Fizkultura", Sofia, 575 (Bg).
- Order № 88 of 30.01.2019** of the Minister of Environment and Waters for medicinal plants with special regime of protection and use (Bg). http://www.riosv.icon.bg/items/documents/417_1.pdf
- Panossian, A., Wikman, G. & Sarris, J.** (2010). Rosen root (*Rhodiola rosea*): traditional use, chemical composition,

- pharmacology and clinical efficacy. *Phytomedicine*, 17, 481–93. doi: 10.1016/j.phymed.2010
- Protected Areas Act** (1998). Promulgated SG No.133 of 11.11.1998 (Bg).
- Radanović, D., Marković, T., Aiello, N. & Fusani, P.** (2014). Cultivation trials on *Gentiana lutea* L. in Southern and South-eastern Europe. *Journal of Applied Research on Medicinal and Aromatic Plants*, 1(4), 113-122. <https://doi.org/10.1016/j.jarmap.2014.10.004>
- Radanović, D., Marković, T. & Mladenović, S.** (2013). Production of Yellow gentian (*Gentiana lutea* L.) nursery plants suitable for transplanting and cultivation under dry farming conditions in mountain region of Serbia. *Ratar. Povrt.*, 50(3), 13-21.
- Red Book of Bulgaria, Part One** (1984). *Publishig House Bulgarian Academy of Sciences, Sofia*, 447 (Bg).
- Red Book of Bulgaria, Part One** (2011). *Electronic edition. Publishig House of Bulgarian Academy of Sciences and Ministry of Environment and Waters, Sofia* (Bg). <http://ecodb.bas.bg/rdb/bg/>
- Šavikin, K., Menkovic', N., Zdunic', G., Stevic', T., Radanovic', D. & Jankovic, T.** (2009). Antimicrobial Activity of *Gentiana lutea* L. Extracts. *Z. Naturforsch*, 339-342. <http://www.znaturforsch.com/s64c/s64c0339.pdf>
- Yaneva-Balabanska, I.** (2013). Legal regulation of the use of medicinal plants in Bulgaria. *Bulgarian Journal of Public Health*, 5(3), 9-20.
- Yousef, G. G., Grace, M. H., Cheng, D. M., Belolipov, I. V., Raskin, I. & Lila, M. A.** (2006). Comparative phytochemical characterization of three *Rhodiola* species. *Phytochemistry*, 67, 2380–91. doi: 10.1016/j.phytochem.2006.07.026
- Zhang, Q. & Ye, M.** (2009). Chemical analysis of the Chinese herbal medicine Gan-Cao (licorice). *J. Chromatogr., A*. 1216(11), 1954-69.

Received: June, 20, 2019; *Accepted:* June, 25, 2020; *Published:* August, 31, 2020