



Solo Booster: A Traditional Preventive Medicine

Bibhutoh Bhattacharjee, drbibhutoh7@gmail.com

Practicing Physician

Kailash Dham, 15 Nilganj Road, Kolkata-700110

Abstract: Solo (scientific name *Rhodiola Rosea*) extract has many health benefits and considered safe with low risk of side effects on the recommended dose. The solo extract is a mediator interaction with several molecular networks of neuroendocrine-immune and neurotransmitter receptor systems involved with the pathophysiology of depression. It is having so many preventive particles like Antiaging, Anti-inflammation, Immune stimulation, DNA repair, Anti-cancer, and also other different model systems of time generated diseases. In European Research, it was found that it stimulates the nervous system, decreases depression, enhances working performance, eliminates fatigue, preventing oxygen shortage problems of the human body, and also prevent high altitude sickness. In Russian Research, it was found that it can increase resistance on so many chemical, biological and physical stressors; it can help humans as antidepressants, Anti-cancer, Cardio-protective, immune enhancement, and stimulate the central nervous system. It is also useful for poor appetite, irritability, hypertension, headache, and fatigue. The solo extract might help and Protect cells from Dengue, regulate heartbeat, improve memory, and immune system of the body. It is also useful in lowering blood sugar and blood pressure; therefore should be consumed with the caution of instant fall of blood pressure and also instantly reduced sugar level.

Index Terms - *Rhodiola Rosea*, Immunity, COVID-19, Sanjeevani, Wonder herb, Preventive herbal medicine

I. INTRODUCTION:

As mentioned in the Valmiki Ramayana epic[1], when Lord Ram was battling Ravan in the seaside near Sri Lanka to rescue his wife, Sita, his brother Sri Lakshman was severely wounded, and there was very little chance of his survival. The renowned physician of that time Sri Sushena prescribed "mrit sanjivani," an infuser of life, plant for the revival of the comatose younger brother of Lord Ram. Ram then sent his chief attendant, Hanuman, to bring the said plant from the mountain Himalayas (Nag Sreshta Himavant). Hanuman left immediately, but upon reaching the Himalayas, he could not identify the plant, and to avoid delay, he took the entire hillside containing the plant. The same was used as a medicine, and Sri Lakshman survived.

A herb, shown in Fig 1, grow in a cold climate and highland areas, is found to be "wonder herb" by the leading scientists of India. This herb is being considered as the mythological herb "sanjeevani." Scientifically known as *Rhodiola Rosea* regulates the immune system and eliminates several health ailments in human and other animals[2].



Fig. 1. *Rhodiola Rosea* (Solo) Plant

II. INDIAN(NATIONAL) PERSPECTIVE

Rhodiola Rosea is found in the Ladakh Union Territory of India. Local people of Ladakh call this Rhodiola Rosea as Solo. Solo plant enhances immunity in the human body, increases metabolisms, helps to adapt comfort living in difficult climatic condition, and protects from cancer and radioactive hazards. Mainly three different categories of Solo herbs are found- Solo Carpo (White), Solo Marpo (Red), and Solo Serpo (Yellow), shown in Fig. 2. Mostly Solo Carpo is used as medicine.



(a) Solo Carpo



(b) Solo Marpo



(c) Solo Serpo

Fig. 2. Categories of Indian Rhodiola Rosea (Solo)

As per the Defence Institute of High Altitude Research (*DIHAR*), "A concerted effort involving conservation, propagation, and sustainable utilization of this unique medicinal herb will surely result in the rediscovery of sanjeevani for the troops deployed in extreme climatic condition along Himalayan frontiers." This herb has the potential to handle the effects of gamma radiation in the human body from bombs used in biochemical warfare[3]. The Defence Research and Development Organization (DRDO) of India is also pursuing research on this miracle herb. As per Leh-based lab of DRDO, "While its adaptogenic qualities can help the soldiers in adjusting to the low pressure-low oxygen environment, the plant has also been found to have antidepressant and appetizer properties," In high altitude, defense personnel face several health-related difficulties and out of that depression and loss of appetite is very common. The creator of this universe has kept medicine for the ailments that arise in high altitude secretly in that area only. *DIHAR* is successful in developing herbal adaptogenic appetizer, and herbal adaptogenic performance enhancer based on Solo that helps troops to cope up with the adverse situation in extreme high altitude conditions, and the same has been highly appreciated by the Indian Army[3].

III. INTERNATIONAL PERSPECTIVE

The Greek physician Dioscorides (AD 40-90) first recorded a herb in *De Materia Medica*, and he renamed that to Rhodiola Rosea from *Rodia riza*. Carl Linnaeus (1707-1778), a Swedish naturalist, wrote about the use of Rhodiola Rosea as a herb to treat hernia, leucorrhoea, hysteria, and headache. Russia and Scandinavian countries are also researching this wonder plant for a long time[6,7,8]. Rhodiola is also available in other parts of the world. Researchers from countries like the US and China are involved in experiments on extracts from this plant. This herb has been used in traditional Chinese medicine to combat high-altitude sickness. The neighboring country Mongolia is also using it for tuberculosis and cancer. Because of its tremendous benefit, the Solo herb is listed as a threatened or endangered plant in many areas of the world, including parts of the United States[5]. The Solo herb has also been used by Tibetan as a hemostatic agent in their folk medicine[9]. As per Tibetan physician, two compounds, namely salidroside and rosavin, are responsible for miracles done by this wonder plant, which is considered more potent than ginseng. Compounds present in this herb enhances physical performance, cognitive function, stress response, and internal balance[10].

IV. SCIENTIFIC SUMMARY

Rhodiola Rosea is a perennial plant, i.e., continues for years of height 30 to 76 cm with a thick rhizome. It has several varieties, but the majority of available plants are yellow. It grows in the mountains of Europe and Asia. The plant is distinguished from other Rhodiola species because of its unique chemical constituents[5,6].

Rhodiola Rosea[4] is a plant from subfamily Sedoideae of family Crassulaceae. Rhodiola Rosea is also known as "golden root," "rose root," or "Arctic root." Out of 200 existing Rhodiola Rosea, at least 20 are used as the main ingredient in traditional Asian medicine. Some varieties worth to mention are Kirilowii, Quadrifida, Sachalinensis, Alterna, Brevipetiolata, Crenulata, and Sacra. Rhodiola extracts have shown adaptogenic effects favorable to human health[11]. It acts as a neuroprotective, cardioprotective, anti-fatigue, antidepressive, anxiolytic, nootropic. It also shows life-span increasing effects and CNS stimulating activity. The chemical component SHR-5 available in *R. Rosea* increases mental performance, reduces depression and anxiety. Several other beneficial compounds available are p-JNK, nitric oxide, Hsp 70, and FoxO/DAF-16. Insignificant side effects, lack of interaction with other drugs made this herb potentially attractive to practitioners to use it as a safe medication. From clinical trials, this herb is found to be useful and beneficial for

- Stimulating the nervous system
- Improved physical and mental performance
- Reducing depression
- Decreasing Stress
- Enhancing work performance
- Improved Appetite
- Eliminating fatigue

- Reducing high altitude sickness
- Enhancing the immune system
- Protection from Radiation hazards

In the present scenario of the world, handling human health from the attack of COVID-19 is a failure world-wide. There is no medicine or vaccine invented yet for the said Coronavirus. The only way of survival is to have better body immunity. Several measures have been prescribed to boost immunity[12]. Enhancement of the natural defense system (immunity) of the human body plays a vital role in maintaining optimum health. In this global pandemic, immunity-boosting is the only mantra to keep oneself alive. Rhodiola Rosea extracts found to be very useful to boost up human immunity towards viruses.

V DISCUSSION AND CONCLUSION

Rhodiola Rosea, along with its varieties, is found to be a wonder plant doing miracles in dealing with human health. It grows in high altitude and essentially cures high altitude-related health issues like fatigue, depression, loss of appetite, etc. It is used by Indian and Tibetan traditional physicians as a medicinal herb against several ailments. Russian researchers applied this herb to athletes and cosmonauts, which produced positive impacts. Studies across the globe found that it is very much useful for fast recovery after a heavy workout, memory enhancement, and cardiac stress reduction. Leh-based Defence Institute of High Altitude Research (DIHAR) is exploring the medicinal values of the plant for the army posted in 5,400m high Siachen glacier. In such high altitude, other than depression, fatigue, loss of appetite, hypoxia is a complicated problem to handle. Hypoxia means a lack of oxygen that harms the cells of the lung, lymph, and spleen tissues. This adaptogenic herb, Rhodiola Rosea) is useful in handling hypoxia by optimum utilization of oxygen and enhancing intracellular oxygen diffusion. This herb is found to help enhance immunity in the human body and hence should be useful in tackling the COVID-19 attack on the human body. It is commonly encouraged to increase the dose of Rhodiola Rosea until it produces the desired effect. There are claims that it is a safe herb with minimal side effects. However, it may show some side effects like dizziness, difficulty sleeping, drowsiness, headache, and gastrointestinal distress. Hence, an extreme increase of the dose to achieve the desired effect is not advisable and should be avoided.

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