Study of disease severity in leaves of Vasaka, in Marathwada region (MS) India

Sutare M S

Dept. of Botany, Dnanopasak College Parbhani, (M.S.) India.
wshekhar11@rediffmail.com

ABSTRACT

Vasaka (*Adhatoda zeylanica* Medic) is an important medicinal plant belonging to family acanthaceae. This plant have great medicinal importance in Ayurvedic world because of possessing medicinal properties to cure various diseases like leprosy, blood disorders, tumors, bronchitis, etc. Such important medicinal plant i.e. *Adhatoda zeylanica* always suffer from various fungal diseases. Hence, a comparative season wise study was conducted to know the disease severity of this plant which is responsible for the decrease in the biochemical constituents especially in leaves. The study revealed that in rainy season disease severity was comparatively more than other seasons, in all districts of Marathwada region.

Key words: *Adhatoda zeylanica*, Adhatoda, vasaka.

INTRODUCTION

It is well known that herbal medicines are in great demand as primary healthcare remedy because of great efficacy and no side effects (Narula *et al*., 2000). Vasaka *(Adhtoda zeylanica)* is also one of the herbal medicinal plant synthesizing various biochemical components i.e. alkaloids, flavonoides, saponins, vasicine, vasicinone, vasicinolone, proteins, cabohydrates etc. mostly in leaves (Muhommad *et al*., 2006). These chemical metabolites obtained from leaves are used as medicine against bronchitis, leprosy, blood disorders, ear diseases, thirst, asthma, fever, vomiting, loss of memory, leucoderma, jaundice, tumors, etc. (Seema *et al.*, 2010). This plant is perennial in nature, so local people collect it at flowering stage, dry it and sale it in market. In India this plant have total demand of 500/yr as mentioned by Pulliaih in Encyclopedia of medicinal plants (2006). This medicinal plant is contaminated by various fungal pathogens viz. is responsible to cause reduction in biochemical components of plant parts (Adriana *et al.,* 2006). Hence, there is need to study disease severity of this plant leaves and to know the reasons responsible for decreasing medicinal properties of the plant leaves.

MATERIALS AND METHODS

In order to study the disease severity of leaves of vasaka plant, survey was conducted in summer, rainy and winter season i.e. from hedge bordered farm area (Suthar *et al.,* 2009). The site of survey was selected as different districts of Marathwada region i.e. Osmanabad, Nanded, Hingoli, Parbhani, Aurangabad, Beed, Jalna and Latur. The leaves of vasaka plant were collected in clean plastic bags and shade dried. The collected leaves were stored in polythene bags as per the method given by Muhammad *et al*., (2006) and Kashyap *et al.,* (2007). Disease severity was calculated by five point scale method (Mayee *et al.,* 1983).

RESULTS AND DISCUSSION

Medicinal plants are the natural wealth of India and vasaka is major valuable plant. Hence, the comparative season wise study conducted to know the disease severity of this plant. The above mentioned data in table indicates that in rainy season disease severity in all districts of Marathwada was from 26.25 to 43.75%. While, in winter season it was from 16.70 to 21.00% .On the other hand in case of summer season disease severity was recorded as from 14.00 to 18.20%. It is clear that among the three seasons maximum disease severity was observed in rainy season followed by winter and summer. Narendra and Verma (2009) recorded the disease incidence of *Alternaria alternata* on *Adhatodavasica*plant. They observed that disease incidence of fungal pathogens was more i.e. between 26.25% to 32.25% at lower temperature.

Table 1: Disease severity in Marathwada region.

season	Districts of Marathwada							
	Obd	Ned	Hin	Pbn	Abd	Bd	Ltr	Jal
Summer	17.20%	18.00%	17.00%	18.20%	14.00%	15.00%	16.50%	16.50%
Rainy	35.00%	32.25%	30.00%	43.75%	27.70%	28.20%	26.25%	27.00%
winter	18.70%	21.00%	17.00%	19.20%	17.50%	18.70%	16.70%	18.20%

Obd-osmanabad, Ned-Nanded, Hin-Hingoli, Pbn-Parbhani, Abd-Aurangabad, Bd-Beed, Ltr-Latur, Jal-Jalna

Joshi and Kareppa (2010) also studied disease severity of *Chlorophytum borivillianum*. They noticed that there is variation in Disease Severity Index (DSI) with respect to season and also mentioned that in rainy season DSI was more. Shivanna and Mallikarjunasamy (2009) also investigated the fungal diseases and their effect on phytochemical constituents of medicinally important Terminalia sp. They observed high disease incidence during rainy season followed by winter. Anil *et al.,* (2012) also studied in detail the diversity of medicinal plants in Gautala sanctury of Kannad, Dist. Aurangabad (MS), India. They reported the need of conservation of such important medicinal plants. Hence, this work will be helpful not only to know the proper time of collection of vasaka plant leaves but also provides scope line to investigate better remedies to come across the threat of medicinal plant i.e. Incidence of fungal diseases.

LITERATURE CITED

Adriana B, Adriana ABA, Tatiana CP, Terezinh JAP and Myrna S, 2006. Occurance of toxigenic fungi in herbal drugs. *Braz. J. Micro*., **37**(1):1-4.

Anil A, Kshirsagar K, Sanjay A Pawar, Nirmala P, Patil and Vasant P Mali, 2012. Diversity of medicinal plants in GautalaSanctury of Kannad,Dist. Aurangabad (MS) India. *Bioscience Discovery,* **3**(3):355-361.

Kashyap AS, Chauhan CS, Verma AK and R K Sharma 2007 Storage specificity of *Adhatoda zeylanica* Medicus as acrude drug. *Advances in Pl. Sci.,* **20** (1):227-231.

Mayee CD, 1983. Epidemiology and forecasting of groundnut rust in Marathwadaregion.Final report by Dept, of plant pathology. MAU, Parbhani Oct 1978- Sept 1983.

Muhammad G, Wahed A, Mehmood S and Ihtisham M, 2006. Extraction and purification of various organic compounds in selected medicinal plants of Kotli, Sattian, Dist Rawalpindi, Pakistan. *Ethanobotanical leaflets*. **10**:13-23.

Narendra O and Verma P, 2006. Epidemiology of Alternaria blight of Adhatoda caused by *Alternaria alternata* **.** *Ind. J. Agri. Sci.* **79**(11): 945-948.

Narula S, Shrvastava PS and Rangaswamy NS, 2000. *In vitro* cultural studied on Dioscorea sp. *J. Trop. Med.Pl.* **1** : 60-74.

Pulliaih T, 2006. *Encyclpedia of world medicinal plants.* Regency publ. Uni. of Chicago.Vol**1**:44.

Seema s, Sharma D, Raghuvanshi RK, Sharma RN and Chandrakant P, 2010. Cytological studies 0f Adhatoda L sp and Barleria sp. *The Bioscan,* **5**(1):67-70.

Shivanna MB and Mallikarjunaswamy GK 2009. Fungal diseases and their effect on phytochemical constituents of medicinally important Terminaliasp in Bhadra wildlife sanctuary, Karnataka, India. *Indian Phtopath*., **62**(1):37-43.

Suthar AC, Katkar KV, Patel PS, Hamrapurkar PD, Mridula G, Naik VR, Mundada GR and VS Chauhan 2009. Quantitative estimation of vasicine and vasicinone in *Adhatoda vasicae* by HPTLC. *J.Phar. Res.,* **2**(12):1893-1899.

How to Cite this Article:

Sutare MS, 2013. Study of disease severity in leaves of vasaka, in Marathwada region (MS) India. *Biosci. Disc.,* **4**(2):187-188.