

Original Research Article

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Management of Powdery Mildew Disease of Babchi (*Psoralea corylifolia*)

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ABSTRACT

The powdery mildew disease of Babchi (*Psoralea corylifolia*) caused by *Erysiphe cichoracearum* is a devastating disease results into complete defoliation of leaves due to severe infection, which hampers seed yield. Babchi a medicinal plant whose seeds are used in the treatment of leprosy, leucoderma, psoriasis and other skin diseases. Seed oil is recommended for application over scalps to treat dandruff. The plant extracts have been reported to possess antibacterial, antitumor, antioxidant, anti-inflammatory properties. Such a wonderful crop suffered from powdery mildew. Looking to the importance of this disease the field experiment was conducted during *kharif* 2017-18 for its management. The experiment was conducted with seven treatments which were replicated thrice in a randomized block design. The treatments were T₁- Spraying of salicylic acid @ 100 ppm, T₂- Spraying of butter milk @ 5 ml/litre, T₃- Spraying of mineral @ 10 ml/litre, T₄- Spraying of yeast *Ampelomyces quisqualis* @ 5 g/litre, T₅- Spraying of Baking soda @ 2 g/litre, T₆- Spraying of wettable sulphur @ 2.5 g/litre and T₇- Untreated control. The sprayings were undertaken as soon as the powdery mildew disease was noticed on few plants, overall three sprays were taken at an interval of 15 days. The results indicated that all the treatments significantly recorded lowest powdery mildew intensity and maximum seed yield as compared to untreated control. The lowest powdery mildew intensity 29.68% was observed in treatment T₆ i.e. spraying of wettable sulphur with maximum reduction 60.33% of powdery mildew and highest seed yield 17.75 q/ha. However, the treatment T₄ i.e. spraying *Ampelomyces* was statistically on par with the treatment of wettable sulphur for both the characters i.e. powdery mildew intensity (23.63%) and seed yield (17.36 q/ha). The results obtained from present investigation concluded that three sprayings of wettable sulphur @ 2.5g/lit. or yeast i.e. *Ampelomyces quisqualis* @ 5 g/lit. was found to most effective for the management of powdery mildew of Babchi crop.

Keywords

Powdery mildew disease, Babchi, *Erysiphe cichoracearum*

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Introduction

Babchi (*Psoralea corylifolia*) a medicinal plant belongs to family Fabaceae. It's distribution is found in semi-arid region of Rajasthan and Eastern districts of Punjab and adjoin Uttar Pradesh. The seeds of the plant contain variety of coumarins including psoralen. The seeds are used in the treatment of leprosy, leucoderma, psoriasis and other

skin diseases. Seed oil is recommended for application over scalp to treat dandruff. The plant extracts have been reported to possess antibacterial, antitumor, antioxidant, anti-inflammatory, antifungal and immunomodulatory properties. Such wonderful crop is severely suffering from the powdery mildew disease caused by *Erysiphe cichoracearum*.

Materials and Methods

Powdery mildew is a devastating foliar disease of Babchi and for its management a field experiment was taken during 2017-18 at AICRP on Medicinal, Aromatic Plants & Betelvine, Mahatma Phule Krishi Vidyapeeth, Rahuri (M.S.). There were seven treatments which were replicated three times in Randomized Block Design (RBD). The treatments consist of spraying of salicylic acid @ 100 ppm, butter milk @ 5 ml/lit, mineral oil @ 10 ml/lit, yeast - *Ampelomyces quisqualis* @ 5 g/lit, baking soda @ 2 g/lit, wettable sulphur @ 2.5 g /lit and untreated control. Overall three sprayings were given as soon as the powdery mildew symptoms observed on few plants at an interval of 15 days.

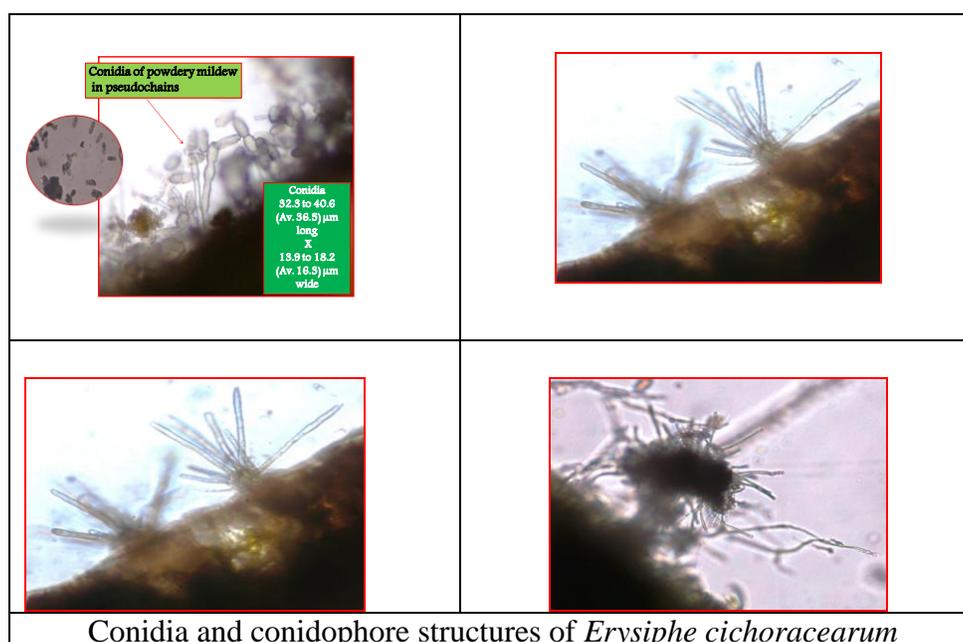
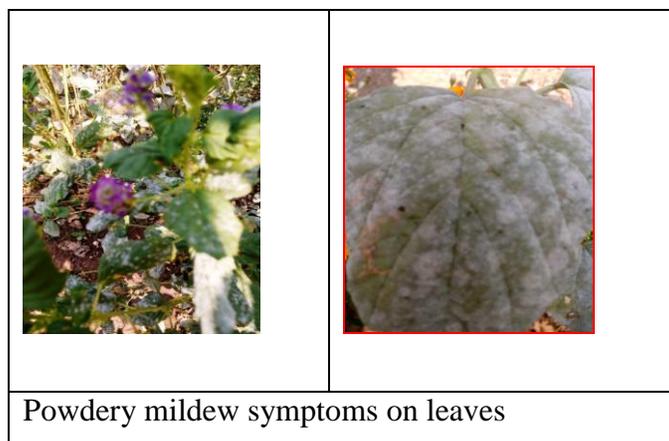
Results and Discussion

The data presented in Table 1 in respect of powdery mildew and seed yield (q/ha) indicated that all the treatments recorded lowest powdery mildew intensity and maximum seed yield as compared to the control. The lowest powdery mildew intensity 29.68 % was observed in the spraying of wettable sulphur (T₆) with maximum reduction 60.33% of powdery mildew and highest seed yield of 17.75 q/ha. However, spraying of yeast i.e. *Ampelomyces quisqualis* was statistically on par with wettable sulphur for both the characters i. e. powdery mildew intensity (33.63%) and seed yield (17.36 q/ha).

Table.1 Effect of different treatments on intensity of powdery mildew disease and seed yield of babchi

Treat. No.	Treatment details	Powdery mildew intensity (%)	PDC	Seed yield (q/ha)	Per cent seed yield increased over control
T ₁	Spraying of Salicylic acid @ 100 ppm	37.18 (37.57)	50.30	15.15	61.34
T ₂	Spraying of Butter milk @ 5 ml/lit	38.07 (38.10)	49.11	12.71	35.36
T ₃	Spraying of mineral oil @ 10 ml/lit	36.00 (36.87)	51.88	16.03	70.71
T ₄	Spraying of <i>Ampelomyces</i> @ 5 ml /lit	33.63 (35.44)	55.05	17.36	84.88
T ₅	Spraying of baking soda @ 2 g/lit	41.60 (40.16)	44.39	11.62	23.75
T ₆	Spraying of wettable sulphur @ 2.5 g/lit	29.68 (33.01)	60.33	17.75	89.03
T ₇	Control (Water spray)	74.81 (59.87)	-	9.39	-
	S.E. ±	1.57	-	0.42	-
	CD at 5 %	4.83	-	1.42	-

Figures in parenthesis are arc-sine values to which statistical analysis pertains



Ampelomyces quisqualis is a specific mycoparasite of Erysiphales, with no impact on human health and environment. It is the most studied biocontrol agent of powdery mildews and one strain isolated in Israel (CNCM I-807) has been commercialized in several countries (Maurhofer, 2013). Dhruj *et al.*, (2000) reported that tridemorph, dinocarp and wettable sulfur were moderately effective, where 30.77, 30.88, 31.88 % disease intensity and 1863, 1844, 1891 kg/ha. Seed yield were recorded, respectively.

It was concluded that spraying of wettable

sulphur @ 2.5g/lit. or yeast *Ampelomyces quisqualis* @ 5ml/lit. was found to be effective for the management of powdery mildew disease of Babchi.

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