



## Study of agriculturally important crop diseases from Baramati Tehsil of Pune district, Maharashtra, India

Sujata Patil, Ashwini Dudhal, Rupali Chitale\*, Prasad Bankar

PG Research Centre, Department of Botany, Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati, District Pune, Maharashtra, India

### Abstract

The present investigation is focused on the study of agriculturally important crop diseases from the Baramati Tehsil in the Pune District, Maharashtra, India. Most diseases causing agent observed during our study included *Synchytrium endobioticum*, *Plasmopara viticola*, *Albugo candida*, *Guignardia citicarpa*, *Plasmodiophora brassica*, *Physoderma maydis*, *Personospora effusa*, *Synchytrium endobioticum*, *Plasmopara viticola*, *Albugo candida*, *Guignardia citicarpa*, *Plasmodiophora brassica*, *Physoderma Phytophthora infestans*, *Pythium aphanidermatum*, *Sclerospora graminicola*, *Oidium lycopersicum*, *Podospora xantii*, *Erysiphae polygoni*, *Ustilaginodea virens*, *Phomopsis vexans*, *Claviceps fusiformis*, *Fusarium oxysporum*, *Colletotricum dematium*, *Gramini tritici*, *Neovossia indica*, *Ustilago tritici*, *Sphacelotheca sorghi*, *Tolyposporium ehrenbergii*, *Ustilago scitaminea*, *Ustilago maydis*, *Sphacelotheca reliana*, *Uromyces fabae*, *Cercospora archidicola*, *Collectotricum capsici*, *Collectotricum falcatum*, *Alternaria solani*, *Elsinoe ampelina*, *Alternaria porri*, *Sclerotinia sclerotiorum* etc. *Mastigomycetes* (22.5%), *Ascomycetes* (37.5%), *Basidiomycetes* (25%), and *Deuteromycetes* (15%) species were observed throughout the investigation. During the investigation, the largest percentage of Powdery mildew, Wilt illnesses from the sub-division *Ascomycetes*, and the lowest percentage of Rot diseases from the sub-division *Deuteromycetes* were reported.

**Keywords:** disease, host and pathogen

### Introduction

India's agro-climatic diversity includes tropical, subtropical, and temperate climate zones with temperatures, humidity, and rainfall ranging from average to high. For pests and pathogens, tropical and subtropical climates are ideal for growth development. The majority of the world's fruits, vegetables, cereals, pulses, oil seed crop, and fiber crop are grown in India, but diseases has restricted growth, (Pawar *et al.*, 2010) [1]. Different types of crop diseases in agriculture fields, according to Pandey *et al.* (2017) [1] includes black spot, leaf spot, powdery mildew, rust, smut, downy mildew, and others. Sugarcane diseases are major source of crop loss around the world. More than 125 sugar beet diseases caused by fungi, bacteria, viruses, and nematodes have been reported from around the world. A smut of sugarcane has been reported for the first time by Butler (1906) [5].

Major tropical fruit crop growers are in Asia and the Pacific. Mango, pineapple, papaya, grapes, avocado, and banana are the most popular fruits, but diseases are limiting fruit production. Banana (*Musa spp.*) is one of the most important fruit crops and most common fruits consumed around the world, but Anthracnose caused by *Colletotricum spp.* is a worldwide problem (Ball *et al.*, 2017). The late blight potatoes, which are caused by the fungus *Phytophthora infestans*, are an example of the enormous effect that diseases can have on the course of human history. According to Coates *et al.*, (1967) *Vitis vinifera* or common grape vine is a *Vitis* species native to one of the world's most widely grown horticultural crops powdery mildew is one of India's most damaging grape diseases. The diseases cause leaf curling and senescence, stem weakening, and bud sprouting inhibition in the majority of grapes (leaves, fruits,

and flowers), resulting in significant economic losses (Fry 2008) [8]. Little leaf Brinjal, late blight of tomato, powdery mildew of crucifers, powdery mildew mango, and citrus canker have all been observed in horticulture.

The floriculture industry is one of the most important commercial trades in horticulture and agriculture (Hampson *et al.*, 1984) Marigold, roses, tuberose, and other flowers are grown in India. These crops are getting infected with a variety of diseases, including marigold leaf spot and flower blight. Baker's most important worldwide diseases are gerbera powdery mildew, *Alternaria* leaf spot, and Rose black spot, all caused by *Diplocarpon rosae*. Rouse (1984) is reported susceptible to fungal diseases such as dieback, powdery mildew, rust, stem, blight, *Alternaria* leaf spot, and black spot.

According to Ashwin (2017) [2], wild relative crop diseases in India are diverse and widely distributed. About 166 native cultivated plant species and over 320 wild relatives are housed in the Indian gene center. Onions and sunflowers have powdery mildew. Savary *et al.* (2006) [13] identified leaf spot on groundnuts, as well as yellow and leaf rust, crown rust diseases, and leaf blight.

According to Bhaskaran *et al.* (1974) [4], certain plants are easily distinguishable based on the host's specific symptoms. Crop losses due to pathogen, abiotic, and biotic are direct and indirect losses between 20% and 40%, according to Dhami *et al.* (2015) [7]. These losses represent the true costs of crop losses to customers, public health, communities, environments, economic fabrics, and farmers. Plant diseases have a thousand-year history in India, with the Vedic era being the first to recognize that diseases are caused by microbes. Surpal's book "Vrikshayurveda" from

