ABSTRACT

Anthracnose caused by *Colletotrichum* spp., is a major disease in chili (*Capsicum annuum* L. and *Capsicum frutescens* L.) that can significantly reduce yield. This study aimed to characterize *Colletotrichum* spp. isolates from chili fruits in lowland and highland areas, determine their optimum growth temperature, and assess pathogenicity. The research was conducted from February to July 2025 at the Plant Pests and Diseases Laboratory, Malikussaleh University. Six isolates were obtained using the direct plating method on Potato Dextrose Agar (PDA) and incubated at 16°C, 24°C, and 32°C. Morphological identification included macroscopic (colony color, shape, texture) and microscopic (conidial shape, conidiophores) observations. Pathogenicity tests followed Koch's postulates. Isolates displayed distinct morphological variation. Growth was generally optimal at 24°C, though some isolates grew best at 32°C, while 16°C suppressed growth. The BDR isolate had the shortest incubation period (3 days), while RDR and RDT isolates showed the highest disease incidence (100% at 5 days). NDR, BDT, and NDT had the longest incubation period (13 days). These findings highlight morphological diversity, temperature-dependent growth, and varying virulence among *Colletotrichum* spp. isolates, providing essential information for developing targeted anthracnose management strategies in chili cultivation.

Keywords: growth temperature, highland, lowland, morphology, pathogenicity