

Editorial

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First Report of a Smut Disease on Grasses in Gilgit-Baltistan, Pakistan

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Editorial

Gilgit and Skardu are two divisions of Gilgit-Baltistan (GB) region of Pakistan. Gilgit district is part of Gilgit division, which has geographic coordinates $35^{\circ} 55' 0''$ North, $74^{\circ} 17' 49''$ East. The area of Gilgit district is about $38,000 \text{ km}^2$ (15,000 sq mi) and located 1600 to 3000 m above sea level [1]. It is linked to China by Karakorum Highway (KKH) to the northeast, bounded by Afghanistan in the north and to its east Skardu, to its south Astore and Diamer and to its west Ghizer districts are located. The mountains of District Gilgit are covered with snow. The temperature range of the District Gilgit is 10 in winter to above 40°C in summer. With severe winters and dry summers, mean annual rainfall range from 120 to 240 mm. Most of the local communities are involved in farming [2]. Cereals such as wheat, maize, buckwheat and barley were major crops a few years ago. However recently people are growing potatoes as a major cash crop [3]. Animal husbandry is also the main occupation of the local people. The grazing lands are deteriorating as a result of overgrazing of livestock and emerging plant diseases. Black scurf caused by *Rhizoctonia solani* is a commonly occurring fungal disease and a serious problem in all potato production Valleys of Gilgit-Baltistan. This disease was first time reported by Azhar et al. during 2014 [4]. Similarly, the grapes infected by the fungus *Botrytis cinerea* are more often damaged to such an extent that they are useless for consumption [5]. The other diseases of crops such as crown gall, powdery mildew of cucumbers [6], gummosis of stone fruits [7], the early blight of tomatoes and potatoes [3] and late blight of potatoes [8] are major threats to crops of Gilgit Baltistan. Apart from crops, production of forages has drastically reduced in the current years. Previously the production of forage ranges from 500 to 1,500 kg ha⁻¹. The commonly found grasses in the region are as; *Chrysopogon* spp., *Cymbopogon* spp., *Dichanthium annulatum*, *Pennisetum orientale*, *Aristida* spp., *Oryzopsis* spp., *Dactylis glomerata*, *Poa* spp., *Bromus inermis*, *Agrostis* spp., *Rottboellia exaltata*, *Phacelurus speciosus* and *Eragrostis* spp. [2]. Many of this grass have been infected by a smut disease. In August 2018 a smut disease was found in the grass that is commonly found in Nomal and Nalter Valleys of district Gilgit (Figure 1). The spikelets of grasses were swollen filled with blackish and greyish powdery masses and production was substantially reduced. The infected grasses occurred in patches alongside healthy grasses throughout the grass growing fields. The leaves were found to be distorted and stunted. A mass of black, powdery material was also observed on the stem and leaves of the infected grasses (Figure 1). Due to lack of funding from an institution, the pathogen of the smut disease could not be verified further using Internal transcribed primers (ITS) or other molecular tools. Moreover, to consistent, this first report of smut disease with the previous descriptions of smut disease more research is needed. In conclusion, this is the first report of a smut disease on grasses of Gilgit-Baltistan (GB) based on symptomology.



Figure 1: Symptomatic grasses infected by smut disease. Smut disease found on the leave of grass (early stage) (A), severe infection on the grasses, distorted and dead grasses can be seen (B), infected patch is seen (C).

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