Short Communication

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Effect of Grey Leaf Spot on Oil Content of Rapeseed and Mustard

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Grey leaf spot (GLS) is an economically important fungal disease of rapeseed and mustard in many parts of the world. *Alternaria brassicae* (Berk.) sacc. the causal agent of GLS is a necrotrophic pathogen and can produce conspicuous spotting of all aerial plant parts depending on the host reaction and environmental conditions (Kolte 1985 and Conn *et al* 1990). There are conflicting reports on the effect of *A.brassicae* on the oil content of *Brassica* spp. seeds (Stovold *et al* 1987 and Seidle *et al* 1995). The present study was therefore undertaken to examine this conflicting and unaddressed problems of rapeseed and mustard in Pakistan due to severe edible oil crises in the country.

Seed samples of 4 cultivars/genotypes of rapeseed (*Brassica napus*) and 4 of mustard (*B Juncea*) were collected from plots with heavy foliar infection of *A. brassicae* as well as from plots kept disease free (by spraying mancozeb @ 3g L) and were analyzed for oil content. The oil content was determined by Near Infrared System FOSS Model 6500.

The results indicated that foliar phase of GLS reduced oil content of the seeds to varying extents in all the cultivars/ genotypes of rapeseed and mustard included in these 2 year study. Greatest loss of oil content was recorded in BM-1, MMJ-1304 and Dunkled. The loss in oil content of the seeds from diseased plots of rapeseed cultivars over the seeds from healthy plots ranged between 5.28-12.07%. The highest loss (12.07%) was recorded in Dunkled. The range of loss in oil content of seeds from diseased plots of mustard cultivars/ genotypes over the seeds from healthy plots was between 6.53-12.54%. The loss was highest in BM-1 and lowest MMJ-1277 Table 1. Reduction in oil content of rapeseed and mustard due to GLS was also reported by other workers (Degenhardt *et al* 1974 and Ansari *et al* 1988).

GLS is a major disease of rapeseed and mustard in Pakistan and cause economic losses (Shah *et al* 2000). The study showed that reduction in the oil content is an in variable effect of the disease. The produce becomes poor in quality in view of reduction in oil content of seeds of rapeseed and mustard irrespective of cultivars/genotypes involved. This is an important aspect of the problem, where not only quantity but also the quality, of the produce is reduced. Therefore, in the current national perspective adequate measures are needed to minimize losses from GLS which will help in curtailing the expenditure on the import of edible oil.

Table 1
Effect of GLS on oil content of seeds of different cultivars/genotypes of rapeseed and mustard

Cultivars/ genotypes	Oil content(%)		Loss(%)
	Seeds from healthy plots	Seeds from diseased plots	
Rapeseed			
Abasin-95	35.68[a]	32.86[a]	7.90
Siran	34.68	31.78	8.36
PR-7	35.60	33.72	5.28
Dunkled	36.69	32.26	12.07
Mustard			
BM-1	36.92	32.29	12.54
DLJ-3	33.30	29.98	10.0
MJ-1277	34.30	32.06	6.53
MMJ-1304	35.20	30.94	12.10

a: Mean of two years

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