DETERMINATION OF THE OPTIMUM IRRADIATION TIME TO ELIMINATE
SEED-BORNE DISEASES OF RICE (Oryza sativa L.)
AND MAIZE (Zea mays L.).

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Seed-borne diseases caused by microorganism are common in rice and maize and often
contribute to poor stand establishment thus contributing to considerable yield losses.

The purpose of this study was to evaluate the effect of microwave irradiation for the
control of seed-borne fungi in four varieties of paddy and maize cultivars, and to
determine the effect of irradiation on seed qualities.

Experiment was consisted of four paddy varieties Bg 94-1, Bg 352, Bg 403, Bg 450, and
maize variety ruwan. Irradiation at 0, 5, 10, 15, 30, 45 and 60 second full strength
microwave (820 W, 2450 MHz) and a fungicide treatment (Captan 50% WP) were used
as seed treatments. Application of microwave treatment was done on seeds in opened and
closed petri dishes. Each treatment had four replications. Immediately after given the
microwave treatments seeds were subjected to germination, viability, vigour tests and
blotter test to take diseases counts.

The results reveled that the disease percentages were decreasing with the increase of
microwave exposure duration. Thus germination, viability and vigour were reduced.
Specifically at 45 and 60 seconds all the seeds were non viable and showed no
germination. Difference on openness and closeness of the petri dish did not affect much
on seed borne diseases as well as on seed qualities.

For maize seeds 10 second and for paddy 05 second were the optimum microwave
irradiation durations to eliminate seed-borne diseases without greatly affecting the seed
qualities.

Keywords :- Seed-borne diseases; Microwave irradiation; Rice; Maize.