**Title** The efficacy of radio frequency treatment and its potential for control of storage fungi and aflatoxin contamination on maize grain

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**Abstract**

The experiment was aimed to evaluate the efficacy of radio frequency (RF) heat treatment to eradicate storage fungi and control of alflatoxin 81 contamination. The experiment was designed in 5 x 5 Factorial in CRD with 10 replications. Treatments were RF heated temperatures; 50, 60, 70, 80°C and control (not treated), and RF treated time; 4, 5, 6, 7, and 8 minutes. Then, maize grain was sampled immediately after treatment and then for each 3 months. The experiment found that, after RF treatment, all species of storage fungi; *Aspergillus flavus*, *Aspergillus niger*, *Rhizopus* sp., and *Penicillium* sp. were eradicated while RF treating temperature and duration increased. The best RF treated condition was 80°C with 8 minutes that could eradicate those storage fungi for 94.20, 91.20, 91.20, and 92.80 %, respectively. The RF treated temperature was the main factor that could control aflatoxin 81 contamination. Afltoxin 81 contamination decreased significantly while RF treated temperature was 80°C (6.93 ppb) as compared with control (52.33 ppb). Additionally, the aflatoxin 81 contamination could be predicted by RF treatment as following y = 40.10 + 7.15a - 10.11b - 1.13c, while was aflatoxin 81 contamination, a was storage duration (1 = before storage, 2 = stored for 6 months, and 3 = stored for 12 months), b was RF treating temperature (1 = no RF treatment, 2 = RF treated at 50°C, 3 = RF treated at 60°C, 4 = RF treated at 70°C, and 5 = RF treated at 80°C ), and c was RF treating time (1 = RF treated for 4 mins, 2 = RF treated for 5 mins, 3 = RF treated for 6 mins, 4 = RF treated for 7 mins, and 5 = RF treated for 8 mins) (R-Squared = 0.689).