

In vitro evaluation of new generation and combination fungicides for the management of anthracnose of nutmeg (*Myristica fragrans* Houtt.)

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INTRODUCTION

Nutmeg is an evergreen perennial tree spice popularly known as twin spice (Mace and aril). Being a remunerative crop, its production is affected by many diseases .Anthracnose or fruit rot disease is one of the major disease causing huge economic losses. Since the pathogen *Colletotrichum gloeosporioides* has wide host range application of fungicides is one of the best management strategy to control the disease.

OBJECTIVE

To evaluate the efficacy of new generation fungicides in managing the anthracnose of nutmeg.

MATERIALS AND METHODS

The experiment was conducted at Department of Plant Pathology, College of Agriculture, Vellayani during 2018 to 2020. *In vitro* screening of fungicides was performed with the most virulent isolate of *Colletotrichum gloeosporioides* (C4)obtained from Kumarakom. *In vitro* efficacy of new generation (Propiconazole 25 EC, Difenconazole 25 EC and Azoxystrobin 23 SC) and combination (Carbendazim 12% + Mancozeb 63 % WP and Trifloxystrobin 25% + Tebuconazole 55% WP) fungicides, were tested at four different concentrations viz., 10, 25, 50 and 100 ppm by poisoned food technique.

RESULTS

In vitro screening of new generation fungicides revealed that triazole fungicide Propiconazole 25EC at 100 ppm and combination fungicides, Carbendazim 12% + Mancozeb 63% WP at 25, 50, 100 ppm; and Trifloxystrobin 25% + Tebuconazole 55% WP at 100 ppm concentration resulted in cent per cent inhibition of the mycelial growth of the pathogen. Difenconazole 25 EC, Azoxystrobin 23 SC and Captan 50% WP + Hexaconazole 5% WP showed mycelial inhibition of 69.33, 73.33 and 79.10 % respectively at 100 ppm. The nature of mycelial growth in fungicide amended medium was either fluffy or cottony.

Table 1. Percentage mycelial inhibition of *C. gloeosporioides* by new generation fungicides

Treatments	Percent inhibition (%) at different concentrations*(7DAI)			
	10 ppm	25 ppm	50 ppm	100 ppm
Propiconazole 25 EC	60.88 (51.28) ^a	80.22 (63.57) ^b	85.55 (70.11) ^b	100.00 (90.00) ^a
Difenconazole 25 EC	53.33 (46.90) ^b	56.21 (48.57) ^c	60.88 (51.28) ^c	69.33 (56.36) ^c
Azoxystrobin 23 SC	57.10 (49.08) ^b	56.88 (48.94) ^c	64.88 (53.64) ^c	73.33 (58.89) ^c
Captan 50% WP + Hexaconazole 5% WP	39.10 (38.52) ^c	48.21 (43.95) ^c	57.55 (49.34) ^c	79.108 (68.29) ^b
Trifloxystrobin 25% + Tebuconazole 55% WP	76.21 (60.80) ^a	79.32 (62.95) ^b	83.99 (66.42) ^b	100.00 (90.00) ^a
Carbendazim 12% WP + Mancozeb 63% WP	44.44 (41.65) ^b	100.00 (90.00) ^a	100.00 (90.00) ^a	100.00 (90.00) ^a
CD (0.05)	5.927	2.602	6.892	10.685
SEm	2.019	0.886	2.347	3.639

*Mean of five replications ; Figures in parenthesis are arc sine transformed values

Figure 1: Effect of various fungicides on the mycelial growth of *Colletotrichum gloeosporioides* isolate

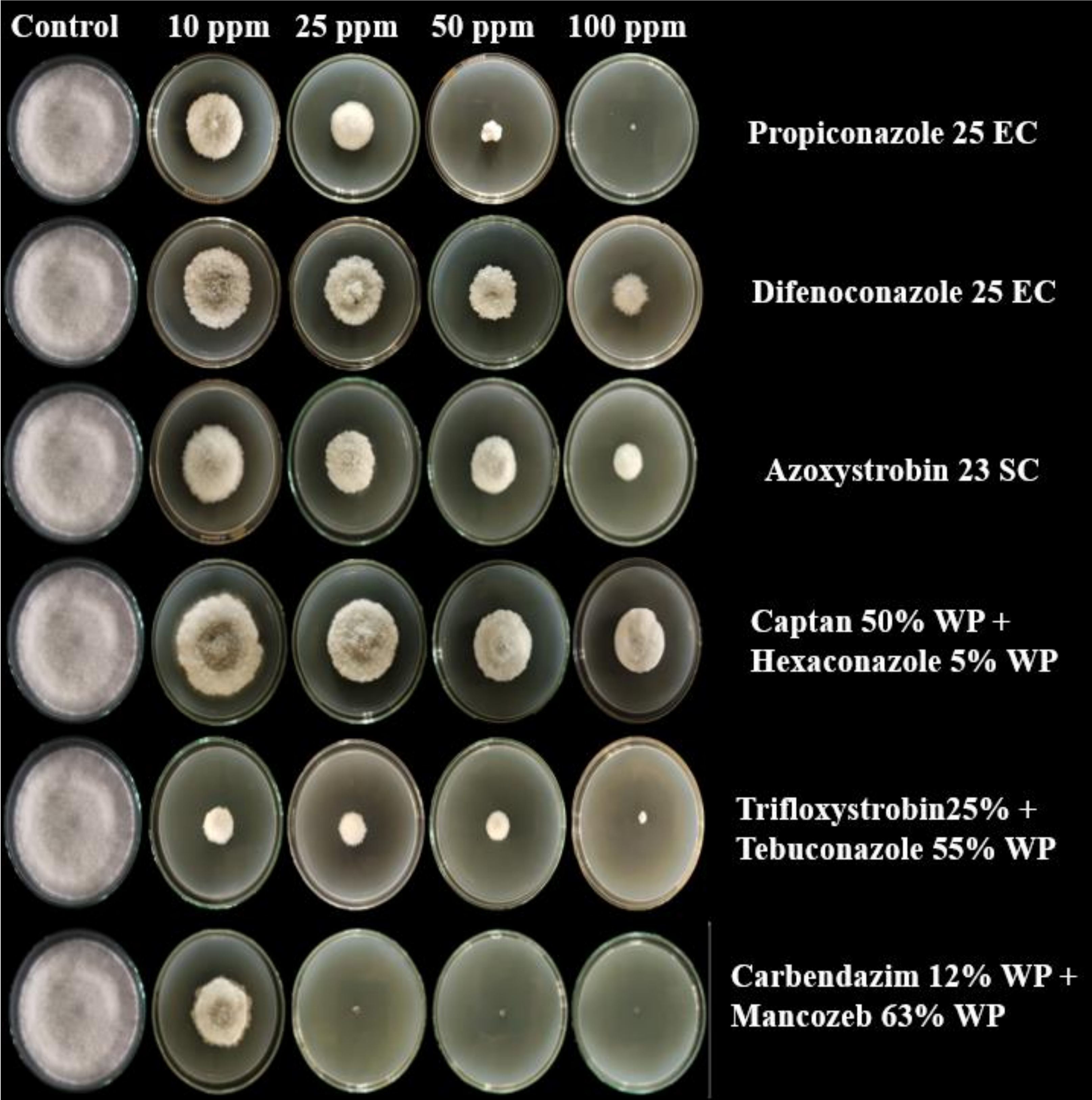
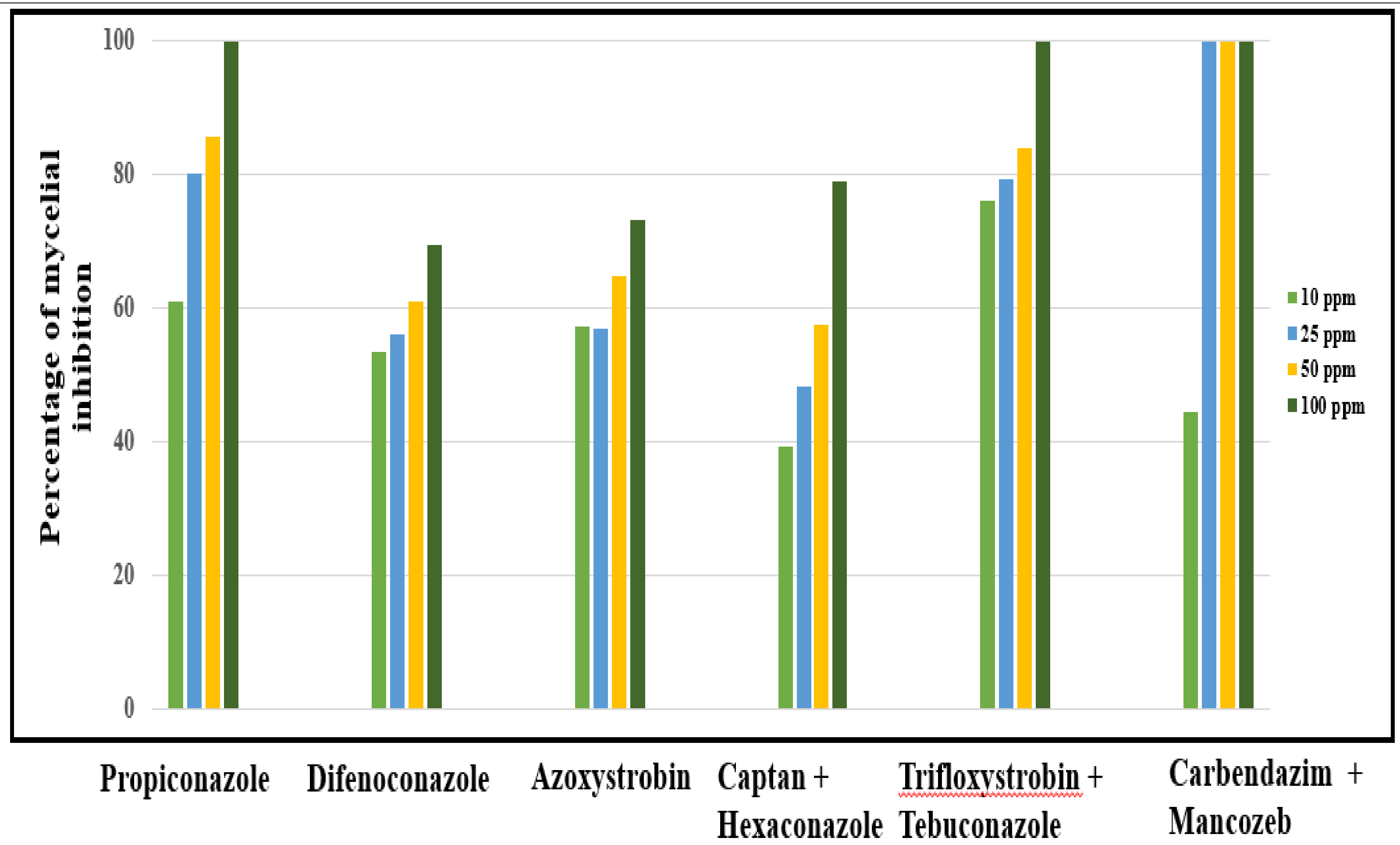


Fig 1: Growth suppression of *C. gloeosporioides* by triazole, strobilurin and combination fungicides



INFERENCE

The study revealed the effectiveness of new generation fungicides in managing the anthracnose of nutmeg. Carbendazim 12% + Mancozeb 63% WP could inhibit the mycelial growth of the pathogen even at a lower concentration (25 ppm) which provides a promising thrust for the management of the disease.

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