

الآية

قال الله تعالى:

الَّذِي أَنْزَلَ مِنَ السَّمَاءِ مَاءً فَأَخْرَجْنَا بِهِ نَبَاتَ كُلِّ
أَخْرَجْنَا مِنْهُ خَضِرًا نُّخْرِجُ مِنْهُ حَبًّا مُتَرَاكِبًا وَمِنْ
تَخُلُ مِنْ طَلْعِهَا قِنْوَانٌ دَانِيَةٌ وَجَنَّاتٍ مِّنْ أَعْنَابٍ
يَتُّونَ وَالرُّمَّانَ مُشْتَبِهًا وَغَيْرَ مُتَشَابِهٍ ۗ انظُرُوا إِلَىٰ
أَثْمَرٍ وَيَنْعَمِ ۗ إِنَّ فِي ذَٰلِكُمْ لَآيَاتٍ لِّقَوْمٍ يُؤْمِنُونَ)
(99)

سورة الانعام (99)

DEDICATION

*To my Family,
To my Brothers and Sisters
To my Teachers,
To my Friends and colleagues*

MOAZ M.M.F

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ABSTRACT

Green cumin(*Cuminum cyminum* L). is considered one of the important crops in terms of exports and income worldwide and its cultivation widely spreading in Sudan. The crop is seriously damaged and the yield is radically reduced due to infection by Powdery mildew incited by the fungus *Erysiphe polygoni*. The present study was undertaken under field conditions at Dongula Research Station farm of the Agricultural Research Corporation (ARC), in Northern State during season 2014-2015, to investigate the bioactivity of crude aqueous extracts of Argel, Sodium bicarbonate solution and efficacy of fungicide (Jiamyl 50 WP), against powdery mildew disease in cumin and on yield of this crop. Two concentrations of aqueous extract of Argel, each of 60 and 20g/l and NaHCO₃ solution at concentrations of 2.0 and 1.5g/l and fungicide at 0.5 g/l in addition to control were used. Treatments were arranged randomly in Randomize Complete Blok design replicated three times. Spraying of doses was done twice, 60 days after planting at 7 days interval. The assessment of effect of treatments on Powdery Mildew disease and yield was recorded through the percentage of disease incidence and severity and yield as Kg/f. The results showed that the spraying of aqueous plant extracts of Argel, NaHCO₃ solution and fungicide at all concentrations were invariably highly effective in reducing the percentages incidence, severity of Powdery Mildew disease and increased the yield of the cumin crop compared to control.

Among all treatments, the significantly least percentage disease incidence of 31.0%, severity of 0.8%, and highest yield of 253.5K/f were obtained by fungicide at 0.5 g/L followed by Argel of 33.3% (disease incidence), 1.5% (severity) and 186.4 Kg/f (yield) at 60g/l then NaHCO₃, 35% (disease incidence), 1.1% (severity) and 198.7 Kg/f (yield) at 2.0g/l compared to control 98.3% incidence, 2.8 % severity and 130.7 kg/f yield. However, Argel aqueous extract and NaHCO₃ solution exhibited an increased efficacy with increasing concentration. Moreover, the current results were considered promising and encouraging for to further studies to optimize the time of application and dose of Argel and NaHCO₃ salt for Powdery Mildew diseases control.

ملخص البحث

يعتبر الشمار الاخضر من المحاصيل المهمة عالمياً من ناحية التصدير والدخل والذي انتشرت زراعته على نحو واسع في السودان. تودى اصابة المحصول بمرض البياض الدقيقى والذي يسببه الفطر إرسافى بوليفونى الى اضرار حقيقية ونقص جذرى فى الانتاجية. اجريت الدراسة الحالية بمزرعة محطة البحوث الزراعيه بدنفلا، هيئة البحوث الزراعيه لدراسه الفعالية الحيوية للمستخلص المائى الخام للحرجل، ومحلول بيكربونات الصوديوم وفعالية المبيد الفطرى (جيامايلى 50 WP) ضد مرض البياض الدقيقى فى الشمار و على انتاجية هذا المحصول. استخدم تركيزان لكل من المستخلص المائى للحرجل (60 و 20 جرام للتر) ومحلول بيكربونات الصوديوم (2 و 1.5 جرام للتر) وتركيز واحد (0.5 جرام للتر) من المبيد الفطرى اضافة الى الشاهد.تم ترتيب المعاملات فى تصميم القطاعات العشوائية الكامل و مكرره ثلاثة مرات. الجرعات تم رشها مرتين بعد 60 يوماً من الزراعة بفارق سبعة ايام. تقييم اثر المعاملات على مرض البياض الدقيقى وعلى الإنتاجية تم بتسجيل نسبة الإصابة وحدة المرض والانتاجية بالكيلو للفدان. اوضحت النتائج ان كل تراكيز المستخلص المائى للحرجل و محلول ملح بيكربونات الصوديوم والمبيد الفطرى كانت دائماً فعالة جدا فى خفض نسبة الاصابة بمرض البياض الدقيقى و شدته وزيادة الإنتاجية للمحصول مقارنة بالشاهد. من بين كل المعاملات فان المبيد الفطرى قد اعطى اقل نسبة اصابة معنوية بالمرض (31.0%)، وحدته (0.8%) وزيادة فى الانتاجية 253.5 كيلو جرام للفدان بتركيز 0.5 جرام للتر يليه الحرجل بنسبة إصابة 33.3%، وحدة مرض 1.5% وإنتاجية 186.4 كيلو للفدان بتركيز 60.0 جرام للتر ثم ملح بيكربونات الصوديوم بنسبة إصابة 35.0%، شدة مرض 1.1% وإنتاجية 198.7 كيلو للفدان بتركيز 2.0 جرام للتر بنسبة إصابة 33.3%، شدة مرض 1.5% وإنتاجية 186.4 كيلو للفدان بتركيز 60.0 جرام للتر مقارنة بالشاهد حيث نسبة الإصابة 98.3%، شدة المرض 2.8% والإنتاجية 130.7 كيلو جرام للفدان. على كل فان تراكيز كل من المستخلص المائى للحرجل ومحلول بيكربونات الصوديوم قد اظهرت زيادة فى الفعالية بزيادة التركيز. اضافة الى ذلك فان النتائج الحالية تعتبر واعده و تشجع على دراسات إضافية لتحديد الجرعة والزمن المناسبين لاستخدام الحرجل ومحلول ملح مركبات البيكربونات لمكافحة مرض البياض الدقيقى .