

DEDICATION

*To my
Dear Father*

*To my
Kind Mother*

*To my Brothers and
Sisters*

*To my Friends
And to those who loves
sciences*

TO

*People of my beloved country, Sudan for
their souvenir*

ACKNOWLEDGMENT

To Almighty GOD

For given me life, strength and patience to complete this research

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and decent, humble guidance in this research

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ABSTRACT

The study was conducted at the Sudan University of Science and Technology; College of Agricultural Studies, Shambat farm during the period from August/2009 to February 2010. The aim is to study variability and correlation between yield, yield components and morphological characters in some rice genotypes. The experiment was laid out in a randomized complete block design (RCBD) with three replications. Fifteen characters were measured including yield, yield components and morphological characters. Phenotypic (σ_{ph}^2) and genotypic (σ_g^2) variances, phenotypic (PCV) % and genotypic (GCV) %, coefficients of variation were estimated. Phenotypic and genotypic correlation between different characters was determined. The results showed that there were highly significant differences ($p \leq 0.01$) for yield kg / ha, plant height (cm), number of tillers per plant, weight of 100 grain (g), number of grains per panicle, grain length (mm), number of leaves per panicle, number of filled grains per panicle, days to 50% flowering, harvest index (%) and days to 50% maturity. Also the results showed significant differences ($p \geq 0.05$) for panicle length (cm), and non significant differences for percentage of unfilled grains per panicle (%). The highest values of phenotypic and genotypic variance were recorded by yield kg /ha. Also grain yield was attained the highest values of phenotypic and genotypic coefficients of variation.

Positive phenotypic correlation was observed between grain yield and number of filled grains per panicle, harvest index, panicle length, number of leaves per plant, number of grains per panicle, days to 50% maturity and stem diameter.

Also positive genotypic correlation was detected between grain yield and number of filled grains per panicle, harvest index, panicle length, leaf area, number of leaves per plant, number of grains per panicle, days to 50% flowering and days to 50% maturity.

خلاصه البحث

اجريت هذه الدراسه بمزرعه كليه الدراسات الزراعيه (شمبات) جامعه السودان للعلوم والتكنولوجيا خلال الفترة من اغسطس 2009 الي فبراير 2010 بهدف دراسه التباين والارتباط بين الانتاجية و مكونات الانتاجية و الصفات المظهرية لبعض الطرز الوراثية للارز. نفذت التجربة باستخدام تصميم القطاعات العشوائيه الكامله بثلاثة مكررات. تم قياس خمسة عشرة صفة تضمنت صفات الانتاجية ومكونات الانتاجية وبعض الصفات المظهرية تم تقدير التباينات الوراثية والمظهرية ومعاملات التباينات الوراثية والمظهرية لمختلف الصفات , كما تم حساب الارتباط المظهري و الوراثي بين ازواج الصفات المختلفة. اظهرت النتائج وجود فروقات معنوية عاليه ($p \leq 0.01$) لكل من صفات, الانتاجيه/هكتار, دليل الحصاد, طول النبات, وزن 100 حبة, عدد الاوراق في النبات, سمك الساق, مساحة الورقة, عدد البذور في القندول الواحد, عدد البذور الملئية في القندول, طول البذرة, عدد الايام 50% الازهار, عدد الايام 50% النضج. ايضا اظهرت النتائج وجود فروقات معنوية ($p \leq 0.05$) في طول القندول, ولم تظهر فروقات معنوية لصفة نسبة البذور الفارغة في القندول, كذلك اظهرت نتائج الدراسة ان اكبر قيمة للتباين الوراثي و المظهري سجلت في صفة الانتاجية. ايضا الانتاجية سجلت اكبر قيمة لمعاملة التباين المظهري و الوراثي ووجدت الدراسة ان الارتباط المظهري بين الانتاجية و الصفات مع عدد البذور الملئية في القندول و دليل الحصاد, و طول القندول, عدد الاوراق في النبات, عدد البذور في القندول, عدد الايام 50% النضج و سمك الساق كان موجبا. كما ان الارتباط الوراثي بين الانتاجية مع عدد البذور الملئية في القندول و دليل الحصاد, طول القندول, مساحة الورقة, عدد الاوراق في النبات, عدد البذور في القندول, عدد الايام 50% الازهار و عدد الايام 50% النضج ايضا كان موجبا.

