SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

In the present study, the common bean (*Phaseolus vulgaris* L.) of the Bronco variety grown in Agricultural Research Station, Mallawy -Agricultural Research Center (ARC) in seasons 2013/2014 – 2014/2015.

The present results showed that the changes of five vegetative characters at our treatments. These characters are plant height (cm), branching points number, pods number/plant, pod length (cm) and pod thickness (mm). Generally, all treatments recorded higher values when compared with untreated plants (control). The results showed that foliar application with amino acids led to higher values of plant height (51.9 cm) than vitamin B complex and humic acid. The planting date at 1st October significantly increased the plant height (cm), plantations number, pods number/plant, pod length (cm) and pod thickness (mm) in kidney bean seeds.

Treatments with humic acid ranked the second order after amino acid but before vitamin B complex in dry matter accumulation. Total ash content (%) slightly increased as result in spraying treatments and the same trend was observed in crude lipids. Crude fibers found in sample treated with humic acid were (3.31%) higher than those reported all samples. Treatment with amino acids and planting in October, 1st led to accumulate crude protein percent to be 2.9% followed by treatment with

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Treatments with humic acid ranked the second order after amino acid but before vitamin B complex in dry matter accumulation. Total ash content (%) slightly increased as result in spraying treatments and the same trend was observed in crude lipids. Crude fibers found in sample treated with humic acid were (3.31%) higher than those reported all samples. Treatment with amino acids and planting in October, 1st led to accumulate crude protein percent to be 2.9% followed by treatment with

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Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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Data presented showed effects of four foliar spraying treatments on

SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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the chemical composition of dry seeds. Planting date at 1st October and

SUMMARY

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spraying with amino acids led to highest level of dry matter (91.2%) or

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the lowest level of moisture (9.8%). Treatments with humic acid ranked

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the second order after amino acid but before vitamin B complex in dry

SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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matter accumulation. Total ash content (%) slightly increased as result in

SUMMARY

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spraying treatments and the same trend was observed in crude lipids.

SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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Crude fibers found in sample treated with amino acids was (4.8%)

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higher than those reported in all samples. Treatment with amino acids

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31.9% followed by treatment with humic acid. The highest value of

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crude protein in the dry seeds (31.9%) was found in sample treated with

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amino acid at the first day of October followed by HA treatment and the

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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lowest value (24.6%). Results given also showed that carbohydrates

SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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ranged from 48.8 to 58.4% and the lowest value found when untreated

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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kidney bean seeds cultivated in 15 October.

SUMMARY

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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Data showed existence 16 sugars. The concentrations of different

SUMMARY

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sugars detected and determined in untreated and treated sample with

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amino acids, humic acid and vitamin B complex are determined. Results

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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also, showed that treatment with amino acids increased the total

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saccharides from 12.81 to 55.73 mg/100g in compared with untreated

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sample (control). Kidney beans contain two pentose sugars namely

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Treatments with humic acid ranked the second order after amino acid but before vitamin B complex in dry matter accumulation. Total ash content (%) slightly increased as result in spraying treatments and the same trend was observed in crude lipids. Crude fibers found in sample treated with humic acid were (3.31%) higher than those reported all samples. Treatment with amino acids and planting in October, 1st led to accumulate crude protein percent to be 2.9% followed by treatment with

arabinose (0.92-2.8 mg/100g) and xylose (0.9-3.86 mg/100g) as well as

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amounts of mono- and oligosaccharides. The highest value of alcoholic

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sugar, sorbitol existed in pods treated with amino acids (22.75 mg/100g)

SUMMARY

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while the lowest value (0.34 mg/100g) was for manitol.

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Results indicated that existence of four hexoses namely glucose,

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fructose, mannose and galactose. Glucose concentrations ranged from

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0.58 to 3.34 mg/100g and the highest level was recorded in the pods

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treated with amino acids.

SUMMARY

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SUMMARY

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disaccharides were as follows lactose (0.75-1.94 mg/100g), maltose

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(0.41-3.24 mg/100g) and sucrose (0.39- 2.68 mg/100g). Pods of kidney

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bean variety Bronco also, contain two oligosaccharides, raffinose

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(0.54-2.97 mg/100g) and stachyose (0.46-3.98 mg/100g). The highest

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concentration of oligosaccharide raffinose (2.97 mg/100g) was reported

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in the pods treated with humic acid.

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The study is extended to record changes in TIA and TPCs during

SUMMARY

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seeds maturity and development of pods after 10, 20, 30, 40, 50 and 60

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days after fruit setting. The results showed that TIA in the pod increased

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from 5.6 mg/g at 10 days after fruit setting (AFS) to 8.4 mg/g at 20 days

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AFS and increase reached to be 38.2 mg/g in the full maturity stage (60

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days). In the whole seeds, TPCs levels increased from 45 mg/100g at 10

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AFS to 380 mg/100g in the full maturity stage. In the pods, TPC levels

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increased from 25 mg/100g at 10 AFS to 50 mg/100g at 20 AFS and

SUMMARY

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increase reached to be 320 mg/100g in the full maturity stage.

Effect of some agricultural treatments on growth, yield, antinutritional factors and biochemical characteristics of common bean (*Phaseolus vulgaris* L.)

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Treatments with humic acid ranked the second order after amino acid but before vitamin B complex in dry matter accumulation. Total ash content (%) slightly increased as result in spraying treatments and the same trend was observed in crude lipids. Crude fibers found in sample treated with humic acid were (3.31%) higher than those reported all samples. Treatment with amino acids and planting in October, 1st led to accumulate crude protein percent to be 2.9% followed by treatment with

Fractionation of phenolic compounds by HPLC revealed to

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existence of 16 phenolic and organic acids and 7 phenols and most

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predominant were e-vanillic acid and pyrogallol respectively. Salicylic

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acid level was determined in kidney bean seeds is to be 4.80 mg/100g.

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Effects of foliar application with amino acids, vitamin B complex

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and humic acid on TIA, TPCs, TFs and saponins in three different

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levels of TIA , TPCs and saponin.

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Screening of phytoconstituents in the methanolic and aqueous

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extracts of kidney beans (*Phaseolus vulgaris* L.) variety (Bronco)

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indicated the presence of terpenes, cardiac glycosides, flavonoids (Fs),

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total phenolic compounds (TPCs), monosaccharides and other

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carbohydrates in both extracts. While alkaloids were found in aqueous

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extract only. Both extracts were tested against three pathogenic fungal

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species; *Fusarium oxysporum*, *Alternaria alternate*, and *Aspergillus*

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niger. Most of the plant extracts affect the studied fungal growth

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specially the methanolic extract and the inhibitory effect was as follows:

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(*Fusarium oxysporum*> *Aspergillus niger*> *Alternaria alternate)*.

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studied pathogenic fungal species with most extracts.

SUMMARY

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According to preference index the results obtained in the whole

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The present results showed that the changes of five vegetative characters at our treatments. These characters are plant height (cm), branching points number, pods number/plant, pod length (cm) and pod thickness (mm). Generally, all treatments recorded higher values when compared with untreated plants (control). The results showed that foliar application with amino acids led to higher values of plant height (51.9 cm) than vitamin B complex and humic acid. The planting date at 1st October significantly increased the plant height (cm), plantations number, pods number/plant, pod length (cm) and pod thickness (mm) in kidney bean seeds.

Treatments with humic acid ranked the second order after amino acid but before vitamin B complex in dry matter accumulation. Total ash content (%) slightly increased as result in spraying treatments and the same trend was observed in crude lipids. Crude fibers found in sample treated with humic acid were (3.31%) higher than those reported all samples. Treatment with amino acids and planting in October, 1st led to accumulate crude protein percent to be 2.9% followed by treatment with

and the PI-value was higher than those reported for the other treatments

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ranked the second order (35.3).

SUMMARY

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