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Effect of Spent Mushroom Compost of *Pleurotus pulmonarius* on Growth Performance of Four Nigerian Vegetables

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Spent mushroom compost (SMC) of *Pleurotus pulmonarius* (an edible fungus) was used as soil conditioner for the improvement of growth of four common Nigerian vegetables (*Abelmoschus esculentus, Lycopersicum esculentum, Capsicum annum* and *Capsicum chinense*). The results of these investigations showed that the vegetables responded well to the SMC treatment. Each of them attained its best growth and gave the highest number of flowers and fruits when planted on 6 kg of depleted garden soil supplemented with 600 g of SMC. The control experiment that has the seedlings of the vegetables planted on 6 kg of depleted garden soil only, without the application of SMC, showed stunted and poor growth, with few or no flower and fruit production. *A. esculentus* was the best utilizer of iron utilizing 118.0 mg/kg in the SMC used. Similarly; this vegetable utilized 1.48 mg/kg of nitrogen in the SMC. The highest height in each vegetable was attained with 6 kg of depleted garden soil supplemented with 600 g of SMC. At 9 wk, *A. esculentus* has the mean height of 85.0 cm while these values significantly increased to 100.00 cm at 14 wk ($p \le 0.05$). At 9 wk, *L. esculentum* has the highest mean height of 65.00 cm which increased to 71.00 cm after 14 wk. It was also observed that *A. esculentus* has the highest mean number of fruits (9.00), followed in order by *C. chinense* (8.00) and *L. esculentus* (7.00) ($p \le 0.05$) while, *C. annum* produced the least mean number of fruits (5.00). No fruits production was seen in the control experiments. The results of these findings were discussed in relation to the usage of SMC as possible organic fertilizer for the improvement of growth of vegetables in Nigeria.

KEYWORDS : Mushroom compost, Nigeria, *Pleurotus pulmonarius,* Soil conditioner, Vegetables

Spent mushroom compost (SMC), otherwise known as the spent mushroom substrates, is the left over of wastes after different flushes of mushrooms have been harvested [1-3]. Several agro industrial wastes could be used to prepare mushroom composts. These growing substrates may be composed from different wastes materials such as sawdust, rice straw, bedded horse manure, cotton wastes, paper wastes, cocoa shells, wheat straw, maize husks and various other wastes [2]. Additives such as rice bran, calcium carbonate or wheat bran may be added to enhance mushroom fructification [4-6]. In Nigeria, wastes such as sawdust of different economic trees from plank making industries usually constitute nuisance to our environment as a result of disposal problem [7]. Artificial cultivation of mushroom is at its inception in Nigeria with few growing industries which could not meet mushroom demand of the populace [8]. Therefore, Nigerians usually depend majorly on mushrooms collected from the wild [8]. Wood wastes (sawdust) are used by the few available mushroom growers to cultivate *Pleurotus pulmonarius* and other edible fungal species [2, 7]. These wood wastes are subjected to composting for a specific period and mixed with additives such as rice bran to promote mushroom fructification and high yield [6]. The spawn of *P. pulmonarius* is then used to inoculate the sterilized fermented substrates, packed in bottles or bags and incubated at ambient condition until different flushes of mushroom fruit bodies are harvested [6, 7]. After the cultivated mushroom have exhausted the nutrients within the substrates, and there were no more fruitbodies harvest, the so called remains, regarded as 'the useless material' is known as spent mushroom compost; SMC [3].

SMC have been reported of containing nutrients which could be used for the growth of useful photosynthetic plants [3, 4]. These materials are generally non-toxic to cultivated plants; therefore, it could be employed as soil amendment for different crops [2]. There are two types of spent mushroom substrates; these are fresh SMC and weathered SMC. The fresh SMC is the one that was applied to plants immediately they were removed from mushroom farms [3]. The weathered SMC are those that undergo further decomposition for several weeks before

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their utilization by farmers as soil conditioner [3, 6]. It is better to make use of the weathered SMC for the purpose of planting crops because the ammonia gas content would have reduced drastically and possesses less negative effect on plants [4, 6].

Inorganic fertilizers and manure could be a major source of contamination of vegetables at the pre-harvest stage [5, 9, 10]. Likewise, application of inadequately treated animal manures has been linked to be a major cause of food borne disease outbreak [11, 12]. In the case of SMC, it has been revealed that application of SMC which consists of degraded cellulose and lignin is considered to be important for the improvement of soil and is safe for human consumption [13]. In addition to providing a balanced nitrogen and carbon source for plant growth, the SMC will be further degraded in the soil humus. This is very important in maintaining soil structure, good aeration, water holding capacity, and also relevant to maximizing crop productivity [1, 3].

The word 'vegetable' is a general term without any taxonomic significance. It could comprise some fleshy fruits for example garden eggs, plant roots like carrots, edible mushrooms, leafy shrubs and many more undefined plant parts. Generally, it could be referred to as the entire parts of herbaceous plants or separate plant parts (aerial or underground) which could be eaten as unsweetened or salted foods [14]. They could be consumed raw or partially cooked to retain their proximate values. The nutrient contents of vegetables vary, although, they generally contain little amount of protein and fats, but a relatively high proportion of fibres, carbohydrates, mineral salts and vitamins [3]. Many of them also contain phytochemicals that may have antioxioxidant, antibacterial; antifungal, antiviral and anticarcinogenic properties [15, 16]. Medicinal vegetables could serve as raw materials to pharmaceutical industries. In West Africa, especially in Nigeria, vegetables could serve as major component of soup ingredients. They could be used as condiments and food additives [17].

It is very important to note that the prices of inorganic fertilizers are beyond the reach of the local farmers in the developing countries like Nigeria. In this country, many of our agricultural lands have been over utilized by inadequate farming practice, thereby resulting in nutrient depletion of soils.

There is a need to look for an alternative source of organic fertilizes which will boost the growth and production of vegetables by the local farmers. Therefore, it was the objective of the present studies to use spent mushroom substrates of *Pleurotus pulmonarius* as soil ameliorant for the growth of *Abelmoschus esculentus*, *Lycopersicum esculentum*, *Capsicum annum* and *Capsicum chinense* which are common vegetables from the South Western Nigeria.

Materials and Methods

Sample collection. The seeds of the four vegetables namely (*Lycopersicum esculentum*, *Abelmoschus esculentus*, *Capsicum annum* and *Capsicum chinense*), were obtained from three local markets (Atikori, Ijebu-Igbo, Ago-Iwoye and Mamu markets) in south western Nigeria. The SMC used for the cultivation of *Pleurotus pulmonarius* were collected from mushroom farm of ZARTECH group of industries, Ring road, Ibadan, Nigeria.

Preparation of the growth media. The spent mushroom substrates were weighed in different quantities (400 g, 600 g and 800 g). Each of these quantities was properly mixed with 6 kg of depleted garden soil, which was collected from the Teaching and Research Farm, University of Ibadan, Nigeria. Each mixture was packed into polypropylene bags and adequately watered [18]. Each treatment was replicated three times.

Seedlings raising and planting. Before the application of SMC, the seeds of the used vegetables were raised in the Nursery with the rich loamy soil. The seedlings of each vegetable were planted separately on different plots. After three wk (when the seedlings have fully established themselves), each seedling was removed with the aid of hand trowel and transplanted into already prepared growth substrate that contains the blended mixture of both SMC and depleted garden soil. Adequate water was added to the soil-SMC mixtures including the control [19]. The control experiment had depleted garden soil alone (without any SMC). The watering was done both in the morning and evening [19]. The vegetables were observed at 9 and 14th wk of planting. All the experiments were set up in triplicates. The parameters measured were height, girths, numbers of leaves maintained, number of dropped, flowers and fruit production using the method of Oyetunji [19].

Chemical analysis. The mineral element compositions of the SMC were determined before their application to the soil. This was done in order to know the various elements that were present in the spent mushroom substrates before usage. The SMC in various treatments were also analyzed after the completion of the studies to know their utilization level. The mineral element analyses were carried out using the procedures of Association of Official Analytical Chemists [20].

Analyses of data. The data generated from these investigations were subjected to analysis of variance (ANOVA) using general linear model option (SAS Institute, Cary, NC, USA). Test of significance were determined by Duncan's multiple range test at 0.5% level of probability ($p \leq 0.05$).

Table 1. Mineral elements composition (mg/kg) of SMC before and after usage

Parameters	Fe	Zn	C	N	P
Composition of SMC before usage	126.9[a]	99.0[a]	21.07[a]	1.86[a]	36.40[a]
Abelmoschus esculentus	118.0[b]	11.96[e]	14.25[d]	1.48[b]	29.12[b]
Lycopersicon esculentum	103.4[d]	50.4[c]	18.11[b]	1.30[c]	23.06[d]
Capsicum annum	110.4[c]	20.7[d]	11.44[e]	0.99[e]	26.15[c]
Capsicum chinense	95.3[e]	71.03[b]	15.32[c]	1.15[d]	20.17[e]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).Values are means of 3 replicates. SMC, spent mushroom compost.

Results and Discussion

Utilization of mineral elements by different vegetables. From the results obtained, it was observed that SMC of *Pleurotus pulmonarius* mixed with depleted garden soil generally enhanced all the variables of growth considered when compared with the control (depleted soil alone). It was noticed that the incorporation of SMC into the garden soil significantly ($p \leq 0.05$) promoted height, stem girth, number of leaves, flowers and fruits production in all the vegetables investigated. Table 1 shows that *A. esculentus* was the best utilizer of Iron. It utilized 118.0 mg/kg of this mineral element from SMC. This action of *A. esculentus* might be responsible for its good source of iron. [21]. *Capsicum annum* was the second best, utilizing 110.4 mg/kg of the Fe in the incorporated SMC. This was followed in order by *L. esculentum* (103.4 mg/kg) and *C. chinense* (95.3 mg/kg). The variation in the iron level utilization by different vegetables may be due to the vegetable type and the environmental factors of the habitat where they were grown. Hopkins [22], suggested that the type of soil and its nutrients could be a responsible factors that affect the chemical composition of a crop.

Capsicum chinense was the best utilizer of Zn using 71.3 mg/kg out of 99 mg/kg from the SMC. This was followed by *L. esculentum* (50.4 mg/kg), *C. annum* (20.7 mg/kg) and *A. esculentus* (11.96 mg/kg). The health benefit of *C. chinense* and *C. annum* in treatment of common cold may be linked to the availability of zinc ions in these vegetables. Hopkins [22], suggested that Zn is an activator of large number of enzymes in plant tissues and Zn deficient plants may have short internodes, small leaves and poor growth. All the vegetables used in this study possessed significant amount of this metal ($p \leq 0.05$). *Lycopersicum esculentum* made the best use of carbon utilizing 18.11 mg/kg from the SMC. This was followed by *C. chinense* (15.32 mg/kg), *A. esculentus* (14.25 mg/kg) and *C. chinense* (11.44 mg/kg). This observation was in line with report of Griffin [23] that, all plnts are made up of significant amount of carbon. Cooke and Whipps [24] suggested that human beings are made up of about 18% carbon on the dry weight bases. Hopkins [22] also reported that carbon form the major skeleton of all the macromolecules in plants.

Abelmoschus esculentus utilized 1.48 mg/kg of nitrogen from the spent mushroom substrates. *Lycopersicum esculeuntum* utilized 1.30 mg/kg of N; *C. chinense* used 1.15 mg/kg, while *C. annum* utilized 0.99 mg/kg. In plants, N is the constituents of many important macromolecules such as phytohormones (indole acetic acid and cytokinins) which perform important regulatory roles in growth and metabolism. Nitrogen is also important in proteins, nucleic and amino acids synthesis in plants [25]. In terms of phosphorus uptake, *Abelmoschus esculentus* was the best, utilizing 29.12 mg/kg of P in the SMC. *C. annum* utilized 26.15 mg/kg while *L. esculentum* utilized 23.06 mg/kg and, *C. chinense* utilized 20.17 mg/kg of phosphorus. The deficiency of P in plants may lead to malformation of leaves and necrotic leaf spots [22]. The utilization of various mineral elements present in the SMC, may be directly linked to good growth and fruit development in the vegetables used for this study.

Effect of SMC application on vegetable height and girth. Table 2 shows the mean heights of the selected vegetable types in response to SMC treatments. The highest height in all the vegetables was attained with 600 g of SMC at 9 and 14 wk of planting. At 9 wk, *A. esculentus* has the mean height of 85.0 cm while these values significantly increased to 100.00 cm at 14 wk ($p \leq 0.05$). *L. esculentum* has the highest mean height of 65.00 cm which increased to 71.00 cm after 14 wk. *C. annum* has the highest mean height of 27.00 cm at 9 and 14 wk, while *C. chinense* has the highest mean height of 30.0 cm which increased to 41.00 cm after 14 wk. The variation in the mean height of the selected vegetable types may be genetical in nature [4]. Table 3 shows the effects of the SMC on the girths of the vegetables. 600 and 400 g of SMC with 6 kg of depleted garden soil gave the significant girth values in all the vegetables while the least girth were observed in the control experiments (6 kg of depleted garden soil). With 600 g of SMC, *A. esculentus* had the best girth of 7.50 cm in 14 wk, while the least girth 0.80 cm were observed in 6 kg of depleted garden soil (control). Similar effect of SMC on other plants have been reported [24-26]. It could be clearly seen that the control experiment had least stimulatory effect on the girth of vegetables compared with the SMC treated

Table 2. Effect of SMC on the height (cm) of the vegetables at 9 and 14 wk of planting

SMC	*Abelmoschus esculentus*		*Lycopersicon esculentum*		*Capsicum annum*		*Capsicum chinense*	
	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk	9 wk	4 wk
400 g	59.50 ± 0.58[b]	69.00 ± 0.58[b]	55.00 ± 1.00[b]	71.00 ± 1.0[a]	20.00 ± 0.69[b]	21.00 ± 0.76[b]	25.00 ± 1.44[b]	27.67 ± 1.45[b]
600 g	85.00 ± 1.53[a]	100.00 ± 1.53[a]	65.00 ± 1.53[a]	71.00 ± 1.53[b]	27.00 ± 0.58[a]	27.00 ± 0.58[a]	30.50 ± 2.55	41.00 ± 2.65[a]
800 g	45.50 ± 1.15[c]	35.00 ± 1.15[c]	30.50 ± 1.42[c]	67.50 ± 1.44[c]	19.50 ± 0.29[c]	19.00 ± 0.29[c]	20.50 ± 0.71[c]	15.00 ± 0.76[c]
Control (6 kg of DGS)	25.00 ± 0.55[d]	27.00 ± 0.58[d]	27.00 ± 1.30[d]	25.50 ± 1.32[d]	13.50 ± 1.25 [d]	12.50 ± 1.15[d]	14.00 ± 0.26[d]	10.50 ± 0.29[d]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

Table 3. Effect of SMC on the girths (cm) of the used vegetables at 9 and 14 wk of planting

SMC	*Abelmoschus esculentus*		*Lycopersicon esculentum*		*Capsicum annum*		*Capsicum chinense*	
	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk
400 g	4.00 ± 0.56[b]	6.50 ± 0.58[b]	3.00 ± 0.25[b]	3.00 ± 0.25[b]	3.00 ± 0.05[b]	3.50 ± 0.06[b]	2.80 ± 0.08[b]	2.50 ± 0.06[b]
600 g	5.50 ± 0.26[a]	7.50 ± 0.29[a]	3.50 ± 1.22[a]	3.50 ± 1.20[a]	3.20 ± 0.11[a]	4.00 ± 0.12[a]	3.00 ± 0.15 [a]	3.00 ± 0.15[a]
800 g	2.80 ± 0.29[c]	4.50 ± 0.29[c]	2.40 ± 0.11[c]	2.50 ± 0.10[c]	2.40 ± 0.22[c]	3.00 ± 0.21[c]	2.00 ± 0.16[c]	1.50 ± 0.15[c]
Control (6 kg of DGS)	2.30 ± 0.26[d]	1.50 ± 0.25[d]	1.60 ± 0.12[d]	1.20 ± 0.15[d]	2.00 ± 0.21[d]	1.50 ± 0.15[d]	1.40 ± 0.80[d]	0.80 ± 0.06[d]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

soil which promoted very high girth development. This showed that the introduction of SMC into the soil enhanced significant grow ($p \leq 0.05$).

Influence of SMC application on leaves. The effect of number of vegetable leaves maintained at 9 and 14 wk of planting was represented on Table 4. Leaves are very important in green plants, as they help in the manufacturing of food during the process of photosynthesis. Six kilogram of depleted garden soil, supplemented with 600 g of SMC, gave the highest mean number of leaves, while the least mean number were observed in the control experiments. At 14 wk, 600 and 400 g of SMC introduced separately into 6 kg of depleted garden soil produced the highest number of leaves (that is 90.0 and 80.0 respectively) in *C. chinense*. It was surprising that the control (6 kg of depleted garden soil) produced significant number of leaves in *C. chinense* higher than those obtained for SMC treated soil for *A. esculentus*. However, these values were lower than those obtained for the SMC treated soil in *C. chinense*. This results deviated from the observation of Kadiri and Mustapha [27], for *Vigna unguiculata*. The responses of *A. esculentus* to SMC treatment in relation to the number of leaves produced may be attributed to the type of vegetable used and mineral contents of the garden soil used for planting. Table 5 shows the number of leaves dropped in the studied vegetables at 9 and 14 wk of planting. *L. esculentum* and *C. chinense* recorded the highest number of dropped leaves (12.00 and 13.00 respectively). *A. esculentus* recorded the least number of dropped leaves. All the vegetables under this study had their highest number of dropped leaves in the control experiments. This may be due to the fact that the depleted garden soil alone lacks the essential mineral elements which plants needed to retain leaves. It could also be seen that these nutrients were available in the SMC applied

Table 4. The effect of SMC on the number of leaves maintained by each vegetable at 9 and 14 wk of planting

SMC	*Abelmoschus esculentus*		*Lycopersicon esculentum*		*Capsicum annum*		*Capsicum chinense*	
	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk
400 g	8.00 ± 0.56[b]	14 ± 0.58[b]	28.00 ± 1.72[b]	40.00 ± 1.73[b]	42.00 ± 1.10[b]	50.00 ± 1.15[b]	66.00 ± 2.56[b]	80.00 ± 2.65[b]
600 g	13.00 ± 0.55[a]	18 ± 0.58[a]	34.00 ± 1.20[a]	41.67 ± 1.20[a]	50.00 ± 2.20[a]	60.00 ± 4.58[a]	75.00 ± 2.32 [a]	90.00 ± 2.31[a]
800 g	5.00 ± 0.55[c]	7.00 ± 0.58[c]	22.00 ± 0.56[c]	30.00 ± 0.58[c]	29.00 ± 2.30[c]	35.00 ± 2.31[c]	35.00 ± 2.30[c]	41.67 ± 2.33[c]
Control (6 kg of DGS)	4.00 ± 0.58[d]	5.00 ± 0.58[d]	12.00 ± 1.00[d]	16.00 ± 1.00[d]	5.00 ± 0.56[d]	7.00 ± 0.58[d]	20.00 ± 1.15[d]	25.00 ± 1.15[d]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

Table 5. Effects of SMC on the number of leaves dropped by vegetables at 9 and 14 wk of planting

SMC	*Abelmoschus esculentus*		*Lycopersicon esculentum*		*Capsicum annum*		*Capsicum chinense*	
	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk
400 g	2.00 ± 1.52[d]	6.00 ± 1.20[c]	6.00 ± 1.20[d]	10.00 ± 1.15[d]	2.00 ± 0.56[d]	8.00 ± 0.58[d]	2.00 ± 1.02[c]	11.00 ± 1.00[d]
600 g	6.00 ± 1.22[a]	5.00 ± 0.58[d]	8.00 ± 1.15[c]	12.00 ± 1.15[c]	3.00 ± 1.52[c]	14.00 ± 1.53[c]	2.00 ± 2.51[c]	15.00 ± 2.52[a]
800 g	1.00 ± 0.2[c]	7.00 ± 0.58[b]	10.00 ± 1.25[b]	14.00 ± 1.15[b]	4.00 ± 0.60[b]	17.33 ± 0.88[b]	6.00 ± 2.35[b]	13.00 ± 2.89[c]
Control (6 kg of DGS)	2.00 ± 0.56[b]	8.00 ± 0.58[a]	12.00 ± 0.56[b]	18.00 ± 0.58[a]	6.00 ± 0.52[a]	19.00 ± 0.58[a]	13.00 ± 0.150[a]	15.00 ± 1.53[b]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

soils. This could be attributed to the significant reduction in the number of dropped leaves in all the SMC treated vegetable types. This factor had tremendous effect on other studied parameters such as height, girth, number of flowers and fruits produced. Leaves play significant roles in plant metabolic processes. They are the major site of photosynthesis of the green plants, where macromolecules such as glucose and proteins are manufactured [23, 24]. They are also major site of transpiration in plants.

Effect of SMC application on flower and fruit production. Table 6 shows the effect of SMC treatment on the number of flowers produced by the vegetables at 9 and 14 wk of planting. Initially, no flower was produced by *A. esculentus* in all the SMC treated soil, but other vegetables produced different numbers of flowers. The highest mean number of flowers (11.0) produced was observed in *C. chinense*. *L. esculentum* produced 10.0 flowers, *C. annum* had 8.0 and *A.esculentus* had 9.0 at 14 wk. It was also observed that more number of flowers were produced at 9 wk, while lesser number of flowers were produced at 14 wk. This may be attributed to the stage of vegetable development [27-29]. Flowers are produced before the onset of fruits. Table 7 shows the mean number of fruits produced by each of the studied vegetables. It was generally observed that more fruits were produced at 14 wk, while less fruits were seen at 9 wk. *C. chinense* was the first type of vegetable to produce fruits followed by *L. esculentum* and *C. annum* while *A. esculentus w*as the last vegetable to produce fruits. It was also observed that *A. esculentus* has the highest mean number of fruits (9.00), followed in order ($p \geq 0.05$) by *C. chinense* (8.00) and *L. esculentus* (7.00). *C. annum* produced the least mean number of fruits (5.00). It was noticed that no fruit was produced in all the vegetables in the control experiments. This observation was similar to that of Kuforiji [28], for other selected Nigerian vegetables. Low number of fruits recorded in the vegetables studied may be linked to the types of garden soil used. Low fruits and flower production recorded in these studies might be due to the fact that depleted garden soil was used in all the experiments. If loamy or humus

Table 6. Effect of SMC on the number of flowers produced by different vegetables at 9 and 14 wk of planting

SMC	*Abelmoschus esculentus*		*Lycopersicon esculentum*		*Capsicum annum*		*Capsicum chinense*	
	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk	9 wk	14 wk
400 g	0.00 ± 0.00[a]	6.00 ± 0.58[b]	.00 ± 0.58[b]	4.00 ± 0.58[b]	7.00 ± 0.56[b]	4.00 ± 0.58[b]	19.00 ± 0.50[b]	6.00 ± 0.58[b]
600 g	0.00 ± 0.00[a]	9.00 ± 0.58[a]	10.00 ± 0.53[a]	6.00 ± 1.58[a]	8.00 ± 080[a]	6.00 ± 1.00[a]	11.00 ± 0.58 [a]	8.00 ± 0.58[a]
800 g	0.00 ± 0.00[a]	4.00 ± 0.58[c]	5.000 ± 0.52[c]	2.00 ± 0.58[c]	4.00 ± 0.56[c]	2.00 ± 0.58[c]	6.00 ± 0.58[c]	3.00 ± 0.58[c]
Control (6 kg of DGS)	0.00 ± 0.00[a]	0.00 ± 0.00	0.00 ± 0.00[d]	1.00 ± 0.58[d]	0.00 ± 0.00[d]	0.00 ± 0.00[d]	0.00 ± 0.00[d]	1.00 ± 0.58[d]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

Table 7. Effects of SMC supplementation on the fruits production by different vegetables after 14 wk of planting

SMC	*Abelmoschus esculentus*	*Lycopersicon esculentum*	*Capsicum annum*	*Capsicum chinense*
400 g	5.00 ± 0.58[b]	4.00 ± 58[b]	3.00 ± 0.58[b]	5.00 ± 0.58[b]
600 g	9.00 ± 0.58[a]	7.00 ± 0.58[a]	5.00 ± 0.58[a]	8.00 ± 1.00[a]
800 g	3.67 ± 0.88[c]	2.00 ± 0.58[c]	1.00 ± 0.58[c]	1.00 ± 0.00[c]
Control (6 kg of DGS)	0.00 ± 0.00[d]	0.00 ± 0.00[d]	0.00 ± 0.00[d]	0.00 ± 0.00[d]

Values followed by the same letter(s) are not significantly different by Duncan's multiple range test ($p \leq 0.05$).
SMC, spent mushroom compost; DGS, depleted garden soil.

soil supplemented with SMC have used, there may be possibility of greater performance.

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