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Agronomic Responses and Pollen Staining Abilities of *Solanum melongena* L. (Eggplant) and *Solanum lycopersicum* L. (Tomato)

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Abstract

This study investigated agronomic traits and pollen staining ability of two eggplants, *Solanum melongena* L. (local NHEP 0093 and European hybrid Merdan 465 F₁) and two tomato, *Solanum lycopersicum* L. (local NHTO 0394 and European hybrid Thorgal F₁) genotypes. Seeds were raised in pre-nursery, nursery and transplanted into polyethylene bags containing 20 kg loamy soil mixed with poultry manure at the experimental plot of the Department of Plant Science and Biotechnology, Rivers State University. Experiment was laid out in a Completely Randomized Design with six replications. Agronomic parameters measured included plant height, leaves per plant, leaf area, flowers per plant, days to flowering, and fruits per plant. Data were subjected to one-way ANOVA and means separated using LSD at $P < 0.05$. Pollen viability was assessed using aceto-carmin staining. Merdan 465 F₁ recorded significantly higher plant height (46.0 cm) than NHEP 0093 (26.4 cm), while no significant difference occurred between tomato genotypes. NHTO 0394 produced significantly more leaves (83) but smaller leaf area (57.3 cm²) compared with the other genotypes, flowered earlier (62.8 days) producing significantly more flowers (83.2) and fruits per plant (28.8) than Thorgal F₁, NHEP 0093, and Merdan 465 F₁. Leaves per plant, flowers per plant, and fruits per plant were positively and highly significantly correlated. Pollen staining ability was highest in NHEP 0093 (91%), followed by Merdan 465 F₁ (86%), NHTO 0394 (78%), and Thorgal F₁ (65%). However, higher pollen stainability did not correspond to higher fruit yield, as NHTO 0394 produced the most flowers and fruits despite moderate pollen viability. The results indicate that pollen stainability alone is not a reliable predictor of fruit yield, and that greater emphasis should be placed on vegetative vigor and flowering traits in breeding and cultivar selection, with NHTO 0394 showing strong potential for yield improvement.

Keywords: Agronomic features, Eggplant, Genotypes, Tomato, Pollen stain ability.

Introduction

The family Solanaceae comprises over 96 genera and approximately 2,400 species (Souza *et al.*, 2023) and represents one of the most diverse plant families providing

agriculturally important crops for humans and livestock (Jagatheeswari, 2014; Fentik, 2017). The genus *Solanum* includes several globally important vegetable crops such as tomato (*Solanum lycopersicum*), Irish potato (*Solanum*

tuberosum), eggplant (*Solanum melongena*), and peppers (Mujtaba and Masud, 2014; Anibarro-Ortega *et al.*, 2025). Findings from studies on tomato and eggplant can therefore be broadly applied to other *Solanum* crops. Tomato and eggplant rank among the top ten most consumed vegetables worldwide (Rosa-Martínez *et al.*, 2023). Tomato is a diploid species with twelve chromosome pairs ($2n = 2x = 24$) and originated in western South America, including present-day Ecuador, Peru, and Chile (El-Mansy *et al.*, 2021). It ranks second among cultivated vegetables globally, with an annual production of 4.1 million metric tons; Nigeria is the 11th largest producer worldwide and second in Africa after Egypt (FAO, 2022). Tomato fruits are nutritionally rich, containing essential minerals, vitamins C and E, proteins, fatty acids, and bioactive compounds such as carotenoids and phenolic antioxidants, which contribute to protection against oxidative stress-related diseases (Ali *et al.*, 2021). Eggplant, also known as brinjal or aubergine, is similarly diploid ($2n = 2x = 24$) but is less widely cultivated than tomato, except in southern Europe, Asia, the southern USA, and the Mediterranean region (Mat-Sulaiman *et al.*, 2020). Like tomato, eggplant is rich in carbohydrates, proteins, essential minerals, vitamins, and diverse phytochemicals including anthocyanins and phenolic compounds that confer strong antioxidant capacity (Dong *et al.*, 2020; Uscanga-Sosa *et al.*, 2020; Henry *et al.*, 2022). These compounds are associated with several reported health benefits (Gurbuz *et al.*, 2018; Islam *et al.*, 2021). The close similarities between tomato and eggplant have encouraged grafting experiments aimed at improving productivity, particularly in tomato, although such approaches are not new and have produced contrasting results (Latifah *et al.*, 2021). The flowering and reproductive phases of both crops are highly sensitive to environmental conditions, especially interactions between temperature and relative humidity, which strongly influence pollen viability and fruit set (Driedonks *et al.*, 2018; Sotomayor *et al.*, 2021). Both species are sensitive to low temperatures, with growth inhibition occurring below 16°C during early vegetative development (Adamczewska-Sowińska *et al.*, 2016; Bhandari *et al.*, 2021). However, their comparative performance under high rainfall and humid conditions remains less clearly understood. Vegetative growth and phenological responses in tomato and eggplant depend strongly on prevailing weather conditions, with the reproductive stage being the most vulnerable. In tomato, modest reductions in mean daily temperature (1–1.5°C) combined with increased relative humidity (50–70%) enhance pollen viability (Harel *et al.*, 2014), whereas relative humidity below 50% and elevated temperatures reduce pollen quality, fruit set, fruit number, and yield (Akhoundnejad *et al.*, 2020). Comparative studies help clarify how genetic diversity translates into phenotypic performance under different environments, providing valuable insights for breeding programs (Ghani *et al.*, 2020). For example, eggplant exhibits greater resistance to *Tuta absoluta* than tomato, implicating species-specific defense mechanisms associated with salicylic acid pathways (Chen *et al.*, 2021). Crop species often display strong sensitivity to regional and microclimatic conditions (Campanelli *et al.*, 2019). Significant differences in tomato development, productivity,

and fruit coloration have been reported across different Italian regions (Campanelli *et al.*, 2019), highlighting the importance of multi-environment testing of genotypes in plant breeding. Wide phenotypic variability has been documented in both tomato and eggplant for vegetative, flowering, and fruit traits (Bhandari *et al.*, 2021; Monniaux and Vandebussche, 2023). High rainfall and elevated humidity, common abiotic stresses in tropical and subtropical systems, often promote disease incidence, reduce vegetative growth, and induce flower abortion in both crops (Biratu, 2018). Nonetheless, eggplant has been reported to maintain greater vegetative vigor under humid conditions, with higher biomass accumulation and leaf area development compared to tomato (Abbas *et al.*, 2024). The transition from vegetative to reproductive growth, marked by anthesis, is a critical determinant of yield as it establishes the potential number of fruit-bearing sites (Blackman, 2017; Goodlife *et al.*, 2023). Under high-rainfall conditions, reproductive outcomes in tomato and eggplant frequently diverge. Pollen viability is central to reproductive success, species fitness, and effective hybridization in breeding programs (Sotomayor *et al.*, 2021). Traits related to pollen viability and quantity are increasingly recommended as indicators of heat stress tolerance in tomato (Xu *et al.*, 2017a; Driedonks *et al.*, 2018), as heat stress disrupts meiosis and impairs pollen morphology, viability, and germination capacity (Begcy *et al.*, 2019). Moreover, unviable pollen can hinder fertilization by obstructing pollen tube growth, sometimes exceeding viable pollen transfer in hybrid systems (Laxman *et al.*, 2021). The aceto-carminic staining method has been shown to correlate strongly with fruit set across environmental conditions, outperforming other viability stains (Laxman *et al.*, 2021). Pollen viability encompasses stainability, germination, and fertilization capacity (Sotomayor *et al.*, 2021). Given that effective pollination is critical for fruit quality and yield in tomato and eggplant (Xu *et al.*, 2017b), this study therefore evaluated Agronomic parameters and potential pollen viability of two local genotypes and two European F₁ hybrids of tomato and eggplant under high rainfall and humid conditions using the aceto-carminic stainability test.

MATERIALS AND METHODS

Site description

This research took place between May and August 2024 in the departmental screen house (where the seeds were nursed) and on the experimental plot of the Plant Science and Biotechnology Department of Rivers State University, Port Harcourt, Rivers State. Port Harcourt is at 4.847°N latitude and 6.975°E longitude. It is in the tropical monsoon rainforest region, typically an area of high rainfall with an annual rainfall of 2,369mm - 2,500mm, relative humidity of 80-85% and temperatures of 25°C–28°C.

Experimental materials

Seeds of the two solanaceae species of eggplant (*S. melongena*) aubergine and tomato (*S. lycopersicum*) used in this study were sourced as follows: local eggplant genotype NHEP 0093 and the local tomato genotype NHTO 0394 were from the National Institute of Horticultural Research and Training (NIHORT) Ibadan, Oyo State, Nigeria; whereas the exotic European F₁ hybrids of eggplant (Merdan 465 F₁) and

tomato (Thorgal F₁) were obtained from Agriseed Ltd., Technisem, France.

Planting and Experimental Design

The four genotypes were the treatments. Twenty seeds of each of the genotypes were sown in individual perforated transparent plastic containers (16.5 x 11.5 x 5 cm) containing sandy-loam soil for 3 weeks in the departmental screen house. The germinated seedlings were transplanted at one seedling per bag into transparent Polyethylene bags (15 x 11.5 x 15cm) containing 200g of sandy-loam soil and were grown for three weeks in the departmental screen house. These plants were finally transplanted into perforated black Polyethylene bags (55 x 45 x 45cm) each one filled to three-quarter level with 20kg of loamy soil mixed with 200g dried poultry manure. Each genotype was replicated 6 times and set up in a Completely Randomised Design (CRD) in the open field of the departmental experimental plot and each experimental unit contained one plant. Management practices such as watering, weeding, and staking were carried out as required.

Pollen Staining ability Test

At anthesis, one flower from a single plant of each of the species was used to compare pollen using the staining method, with nuclear dye, 2% aceto-carmin. Pollen grains were harvested from anthers between 8:00-9.00 am when flowers were completely open (Laxman *et al.*, 2021) with a dissecting needle to disrupt the anthers and release the pollen grains onto a microscope slide. The pollen grains were spread on microscope slides, then suspended in a drop of 1:1 aceto-carmin and glycerol and slides covered with slips, edges of the slips were sealed with transparent nail polish. After 10 minutes staining at room temperature, the prepared slides were observed using a light compound microscope (Olympus BX41 with DP12 camera). For each of the four flowers 100 pollen grains were counted. Stained, uniform pollen grains were considered viable, while unstained, irregular pollen were considered non-viable. Pollen viability was quantified as the percentage of viable pollen (Skrzypkowski *et al.*, 2023; Micol-Ponce *et al.*, 2023). The percentage viability was computed from the average of four microscopic counts as follows:

$$\text{Percentage of viable pollen} = \frac{\text{Number of stained pollen grains}}{\text{Total number of pollen grains observed}} \times 100\%$$

Data Collection and Statistical Analyses

Agronomic parameters such as, plant height, leaves/plant, leaf area, flowers buds/plant, flowers/plant, days to flowering, and fruits/plant were collected and percentage pollen of grains stained were recorded in each crop. Data were subjected to analysis of variance using the Statistical Package for the Social Sciences (SPSS) Software. If a measured trait was significantly different, the means were compared by the least significant difference (LSD) test at 5% probability. In addition, simple linear correlation analysis at 5% probability and at 1% probability was used to estimate the relationship between all the parameters in each crop.

RESULTS

Plant height

The exotic European hybrid eggplant Merdan 465 F₁ (46.0cm) were significantly taller ($P = 0.05$) than the local

eggplant NHEP 0093 (26.4 cm) as shown in Table 1. Plants of the exotic European hybrid tomato, Thorgal F₁ (34.7 cm) did not differ significantly from the local tomato NHTO 0394 (38.8cm) in height (Table 1).

Number of leaves

The number of leaves per plant produced in the exotic European hybrid eggplant, Merdan 465 F₁ (11.2) did not differ significantly from the local eggplant NHEP 0093 (10.5) in Table 1. The number of leaves per plant produced in the local tomato variety (NHTO 0394) was significantly higher than the number of leaves per plant in the exotic European hybrid tomato Thorgal F₁ (14.5) (Table 1). The local tomato variety (NHTO 0394) produced a highly significant number of leaves per plant when compared to other genotypes analyzed in this study (Tables 1).

Leaf area

The leaf area of the exotic European hybrid eggplant Merdan 465 F₁ (172.0 cm²) was not significantly different from that of the local eggplant NHEP 0093 (157.0 cm²) (Table 1). The leaf area of the local tomato NHTO 0394 (57.3 cm²) did not differ significantly from the exotic European hybrid tomato Thorgal F₁ (107.3 cm²) as shown in Table 1b.

Days to flowering

In Table 1, the days to flowering of the eggplants showed that the exotic European hybrid eggplant Merdan 465 F₁ (103.0 days) flowered significantly ($P = 0.05$) later than the local eggplant NHEP 0093 (77.3 days). The exotic European hybrid tomato Thorgal F₁ (77.8 days) did not significantly differ from the local tomato NHTO 0394 (62.8 days) in the days to flowering as shown in Table 1.

Number of flowers

There was no significant difference in the flowers/plant produced by the exotic European hybrid eggplant Merdan 465 F₁ (3.0) and the local eggplant NHEP 0093 (4.2) in Table 1. The flowers/plant of the exotic European hybrid tomato Thorgal F₁ (23.8) was significantly less than the flowers/plant of the local tomato NHTO 0394 (83.2) (Table 1).

Number of fruits

In Table 1, the number of fruits/plant of the eggplants is presented. The exotic European hybrid eggplant Merdan 465 F₁ (1.0) did not significantly differ from the local eggplant NHEP 0093 (1.2) in number of fruits/plant. The local tomato NHTO 0394 (28.8) had highly and significantly ($P = 0.01$) more fruits/plant than the exotic European hybrid tomato Thorgal F₁ (3.3) in Table 1.

Pollen Staining ability (Potential Pollen Viability)

In Table 2, pollen staining ability (potential pollen viability) of eggplant is presented. Pollen stainability was 91 % in the local eggplant NHEP 0093 and 86% in the exotic European hybrid eggplant Merdan 465 F₁. Pollen staining ability was 78 % in the local tomato NHTO 0394 and 65 % in the exotic European hybrid tomato Thorgal F₁ (Table 2).

In Table 3, the results of Pearson's simple linear correlation (r) between some vegetative, flowering and fruiting traits are shown. There were three highly significant positive correlations between leaves /plant and flowers /plant; between leaves /plant and fruits /plant; and between flowers /plant and fruits /plant.

Table 1. Agronomic parameters of local and hybrid eggplants and hybrid tomatoes

<i>Solanaceae</i> Species	Genotype	Plant height (cm)	Number of leaves/ plant	Leaf Area (cm ²)	Days to flowering	Number of flowers/ plant	Number of fruits/ plant
Eggplant	NHEP 0093	26.4	10.5	157.0	77.3	4.2	1.2
	Merdan 465 F ₁	46.0	11.2	172.0	103.0	3.0	1.0
Mean		36.2	10.9	164.5	90.2	3.6	1.1
LSD _(0.05)		14.88	9.89	67.18	23.4	18.78	6.74
Tomato	NHTO 0394	38.8	83.0	57.3	62.8	83.2	28.8
	Thorgal F1	34.7	14.5	107.6	77.8	23.8	3.3
Mean		36.8	48.9	82.5	70.3	53.5	16.1
LSD (0.05)		14.88	9.89	67.18	23.4	18.78	6.74

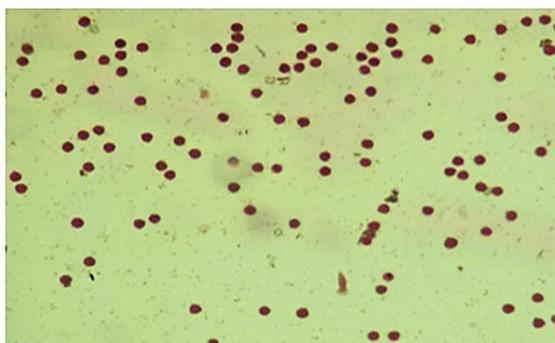
Table 2. Percentage of stained pollen grains (potential pollen viability) of local and hybrid eggplants and hybrid tomatoes

Solanaceae Species	Genotype	Percentage Stainability
Eggplant	NHEP 0093	91
	Merdan 465 F ₁ hybrid	86
Mean		88.5
Tomato	NHTO 0394	78
	Thorgal F1 hybrid	65
Mean		71.5

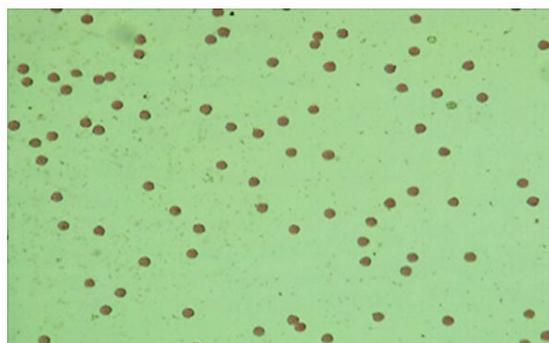
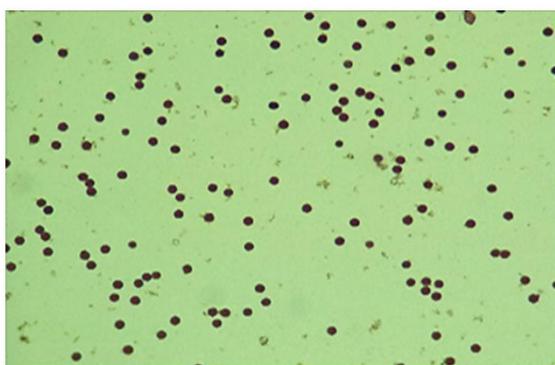
Table 3. Matrix of simple linear correlation coefficients (r) showing the associations between some vegetative, flowering and fruiting traits of eggplant and tomato genotypes in a high rainfall region, Port Harcourt, Nigeria

	Plant height	Leaf Area	No. of Leaves	No. of Flowers	No. of Fruits
Leaf Area	-0.0023				
No. of leaves	0.194597	-0.87176			
No. of Flowers	0.166542	-0.90918	0.996595**		
No. of Fruits	0.179473	-0.88581	0.99955**	0.998575**	
Days to Flowering	0.511626	0.844234	-0.70614	-0.74177	-0.72246

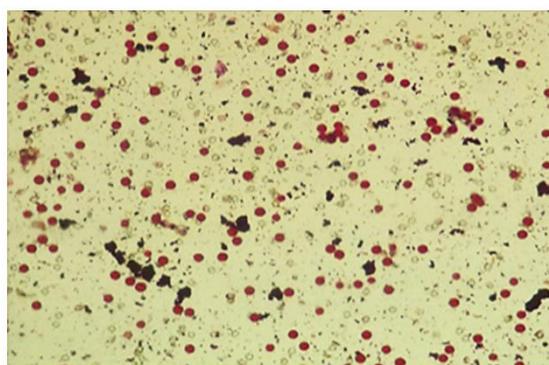
** = Highly Significant at 1% probability



Local Eggplant: NHEP 0093

Exotic European F₁ hybrid

Local Tomato NHTO 0394

Exotic European F₁ Thorgal F₁Plate 1: Pollen Staining ability of local and exotic European F₁ hybrid eggplants and tomatoes

DISCUSSION

It must be mentioned that some of the significant differences observed may be attributed to inherent genetic differences in the species and or in the genotypes of eggplant and tomato. The differences in height of plants and leaves/ plant that were significant can be attributed to the inherent genetic variation among the species / genotypes. The exotic European hybrid eggplant Merdan 465 F₁ was significantly taller than the local eggplant NHEP 0093. Mat-Sulaiman *et al.*, (2020) indicated a similar result of significant differences in plant height in their study on eggplant. Plant height and number of leaves are usually good indicators of plant vigour as exhibited by the local tomato NHTO 0394 with its significantly tall plants and dense foliage. These could have contributed towards its greater productivity when compared to the others. Kouam *et al.*, (2018) reported that indigenous varieties of tomato were significantly taller than hybrids. Ibitoye *et al.*, (2020) reported similar findings and differences in height of tomato plants and leaves /plant to be significant in their research, although Dunsin *et al.*, (2016) had earlier shown that these differences in plant height and leaves /plant were insignificant among the tomato varieties they studied in the screen house. The leaf area of a plant and the number of leaves often determine the amount of light intercepted provided that it does not cause self-shading. This makes these two parameters, particularly when combined, critical factors in photosynthetic capabilities influencing the rate of photosynthesis in the plant, production of photosynthates, plant biomass / dry matter accumulation and eventually overall productivity. In this experiment, flowers /plant showed significant differences as NHTO 0394,

the local tomato, produced significantly the highest number of flowers. Asare-Addo *et al.*, (2022) and Goodlife *et al.*, (2024) in their study also confirmed significant statistical differences in flowers /plant of tomato. The flowers /plant of the eggplants did not differ significantly from each other in this study, although Raja (2021) recorded significant differences in flowers /plant of eggplants. The number of days to flowering were significantly different with the local tomato NHTO 0394 flowering significantly earliest whereas the exotic European hybrid eggplant Merdan 465 F₁ flowered significantly last. Earliness in flowering especially in most vegetable crops may well be advantageous if it leads to earliness in fruiting and subsequently earliness in fruit maturity. This could enable early access to the market and ensure higher prices and income to farmers. Furthermore, early maturity can minimise exposure to insects, pests and diseases thereby limiting yield losses in the field, or else earliness in flowering may not be beneficial. Mat-Sulaiman *et al.*, (2020) and Asare-Addo *et al.*, (2022) also obtained similar significantly different days to flowering results in their study with eggplant and tomato respectively. In fact, Pandiyaraj *et al.*, (2025), reported highly significant differences in plant height, days to first flowering, and fruits /plant among other traits in eggplant. Goodlife *et al.*, (2024), in their investigation found that significant differences in the number of days from planting to flowering of some tomato genotypes was dependent on the season with the effects of the environment playing a major role in the response of some genotypes. Bihon *et al.* (2022) had shown earlier that seasonal variability in environmental factors impacted plant growth,

disease resistance, yield and fruit quality among other traits. Both the local tomato NHTO 0394 and the exotic European hybrid tomato Thorgal F₁ with its sparse foliage not unlike those of the eggplants, produced significantly the highest number of flowers; more than the eggplants. However, the low fruit yields produced by the eggplants and tomatoes, relative to number of flowers formed may be due to flower abortion / flower abscission or failure of flowers to develop into fruits in both local and exotic hybrids of eggplants and tomatoes ($\geq 65\%$ of the flowers were unproductive) resulting in reduced productivity. This was also affirmed by Khaleghi *et al.*, (2021a & 2021b) which they alleged could be due to types of flowers in eggplants; and by Baranov *et al.*, (2024) in tomato who ascribed it to the role of auxin and ethylene homeostasis. Such high rates of flower abscission have been documented in eggplant since 1973 (Saito and Ito, 1973) and in tomato since 1985 (Yamazaki, 1985), and so would need urgent and further investigation to reduce and or eliminate it. Note nonetheless, that whereas the exotic European hybrid tomato Thorgal F₁ had fewer fruits, it produced a larger fruit type than the local tomato NHTO 0394. Its larger fruit type is also preferred by consumers (Bhattarai *et al.*, 2016; Goodlife *et al.*, 2025). The local tomato NHTO 0394 produced significantly the highest number of fruits per plant compared to other species / genotypes, although the higher number of fruits per plant may be attributed to the production of smaller sizes of fruits. Similar significant differences in the number of fruits per plant were reported by Bhattarai *et al.*, (2018), Ibitoye *et al.*, (2020), Fagbemi *et al.*, (2021) and Goodlife *et al.*, (2025). It would seem from literature that generally tomato plants, many of them hybrids, with large sized fruits produce fewer fruits per plant whereas those with medium and smaller sized fruits, typically indigenous / local genotypes, produce large numbers of fruits per plant as was also found in this research (Singh *et al.*, 2014; Kouam *et al.*, 2018; Nkansah *et al.*, 2019). However, Santos *et al.* (2014), had cautioned that high fruit /plant should not be judged the main factor for achieving high yields, since most of the fruits are undersized, reducing quality of fruits and yield levels. Isa *et al.* (2017) and Rai *et al.* (2017) were however emphatic that fruits /plant is the highest guarantor of fruit yield and thus remarked, not surprisingly, that yield could be improved by selection for such a trait in addition to others. Interestingly the earliest flowering species / genotype, the local tomato NHTO 0394 had the highest fruits /plant. On the other hand, unlike in tomato, our findings showed insignificant differences in number of fruits per plant in eggplant as declared also by Mat-Sulaiman *et al.*, (2020) who recorded comparable values. Sotomayor *et al.*, (2021), reported pollen viability percentages of over 95% in some *Solanum* genotypes. In this study, potential pollen viability as shown in the aceto-carmin tests was higher in eggplant than in tomato, averaging 88.5% in eggplant and 71.5% in tomato. Notably the hybrids in both eggplant and tomato had lower potential pollen viability than the local genotypes. From the results, the species / genotype with the highest potential pollen viability did not produce the highest fruits /plant as was also reported by Valadares *et al.*; (2019) in eggplant. This is because the high pollen stainability did not directly translate into higher fruit production, as NHTO 0394, despite

having lower pollen stainability than NHEP 0093 and Merdan 465 F₁, produced significantly more flowers and fruits per plant. This indicates that fruiting was more strongly associated with flower and leaf production than with pollen stainability alone. Conversely, Animasaun *et al.*, (2014), found that viability of pollen and fruit set in tomato were positively correlated and declining viability of pollen produced a lower number of fruit set, signifying that pollen viability is associated directly with fruit set in tomato. They even suggested that viability of pollen could be one of the critical traits to opt for as a breeding objective during selection to improve tomato heat tolerance and productivity; a statement reinforced by Xu *et al.*, (2017a). There were three positive and highly significant correlations; between leaves /plant and flowers /plant; between leaves /plant and fruits /plant; and between flowers /plant and fruits /plant. Such positive and highly significant correlations point to a highly positive association between traits and is an indicator suggesting that selection for such traits showing these same positive and highly significant correlations when breeding, can produce high-yielding genotypes. The results show that pollen stainability alone is not a reliable predictor of fruit yield in eggplant and tomato. For breeding and cultivar selection, greater emphasis should be placed on traits such as flower number, leaf production, and overall plant vigor, which showed strong positive correlations with fruiting.

CONCLUSION

This research has provided an insight into the true value / performance of both local and exotic F₁ hybrids of eggplant and tomato genotypes in Port Harcourt. It has shown that in the solanaceae species of local and exotic F₁ hybrids of eggplant and tomato genotypes studied, there were significant variations in growth, flowering, fruiting and pollen staining ability (potential pollen viability). The results indicate that pollen stainability alone is not a reliable predictor of fruit yield in eggplant and tomato. These findings provide valuable insights for improving cultivation practices in eggplant and tomato, particularly in cultivar selection, greater emphasis should be placed on traits such as flower number, leaf production, and overall plant vigor, which showed strong positive correlations with fruiting. Genotypes like NHTO 0394, combining moderate pollen viability with high flowering and fruit set, are therefore more suitable for yield improvement and hybrid development than those selected solely for high pollen stainability. Moreover, with respect to breeding specifically, the identification of superior genotypes among local and exotic F₁ hybrids, selection of candidate genotypes as crossing parents and the traits to select for to obtain higher yields are necessary for improvement of each species. Knowledge acquired from this study on eggplant and tomato can provide valuable guidelines for use in breeding programs for other crops in the solanaceae family. However, this study could be improved by investigating not only two genotypes but in expanding the number of genotypes per species.

Author Contribution

This research is the result of collaborative effort by the two authors. Author EEG carried out the field trials and collected

the data, Author VW developed the concept, designed the experiment, analysed the data and wrote the manuscript.

Acknowledgements

Seeds of local tomato NHTO 0394 and eggplant NHEP 0093 genotypes were obtained from the National Institute of Horticultural Research and Training (NIHORT) Ibadan, Oyo State, Nigeria.

Competing Interests

Authors declare that there are no competing interests

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