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VEGETATIVE PROPAGATION OF COWPEA [*VIGNA UNGUICULATA* (L.) WALP] FOR INCREASED SEED PRODUCTION

SHORT COMMUNICATION

ABSTRACT

Large number of parental plants are required during hybridization in order to generate enough progeny needed for evaluation. Cowpea is propagated through seeds, this increases the waiting period as the plant has to complete its juvenile phase before flowering. Asexual propagation approach was employed on cowpea using the vine cuttings of flowering plants. The vine cuttings were planted in sterilized top soil and they began flowering 14 days after cutting without adding fertilizer. Success was obtained using this method which increases the rate at which the hybrids needed for multi-location trial were obtained.

Key words: asexual, hybridization, juvenile, propagation, *Vigna unguiculata*, vine cutting

INTRODUCTION

Cowpea is the most economically important indigenous African legume and most versatile African crop which feeds people, their livestock, the soil and other crops. In Nigeria it is simply known as 'beans'. (Langyintuo, *et al.*, 2003; Timko *et al.*, 2007; Agbicodo *et al.*, 2009). It is an important economic crop, because of its various attributes such as: ability to adapt to different type of soils and suitability for intercropping, it grows and covers the topmost soil which in turn prevents erosion, all parts of Cowpea are useful even the leaves which can produce 9 times the calories, 15 times the protein, 90 times the calcium and thousands of times more vita-

min C and beta-carotene of cowpea seed. Cowpea also complements a lot of cereal crops. (Valenzuela and Smith, 2002; Muchero *et al.*, 2008; Hall, 2012).

Plant propagation is the process of increasing the number of plants of a particular cultivar either through sexual or asexual means. Asexual propagation also known as vegetative propagation is the use of the vegetative parts of the plants rather than the seeds. This method is however common with horticultural crops such as plantain, cassava and not crops like cowpea which are mainly propagated through seeds. The advantages of vegetative propagation over sexual propagation include: (i) the new plants are exactly genetically identical with the parent plant and (ii) the new plants bypass the immature seedling phase and therefore reach the mature phase sooner (Weiner, 1988, Frankel and Galun, 2012).

In cowpea breeding, large number of seeds are needed but this becomes difficult during hybridization because on the one hand, early maturing cowpea lines start flowering from 30 days while late maturing lines start flowering from 40 days after sowing if propagated through seed and on the other hand, a naturally pollinated cowpea flower produces an average of 10 seeds depending on the variety while a hand-pollinated flower produces an average of 5 seeds. In order to avert waiting for newly sown plants to go through vegetative stage before flowering, asexual reproduction method is another way to go.

This paper reports on cowpea reproduction through asexual method to cowpea plants for hybridization.

MATERIALS AND METHODS

Young vines were cut from the tip of already growing and flowering cowpea plants with a sharp secateurs. These tender shoots were immediately sown in a planting pot containing well-watered sterilized top soil and maintained in the screen house (Fig. 1). Fertilizer and growth hormone were not added to the top soil but regular watering was done as at when due.



Fig. 1: Freshly cut vines of cowpea plants

RESULTS AND CONCLUSION

This study shows that cowpea can be successfully propagated through asexual means without incurring additional cost to production (Fig. 1). The vines cutting from the shoot tip of already flowering mother plant continued growing and started producing flowers 14 days after cutting (Fig. 2). Successful crosses were thereafter made on the mature plants (Fig. 3).



Fig. 2: Flowers on 14-day old vine cutting

The success obtained from this study will go a long way to alleviate the problem associated with having to plant cowpea plants from seeds especially during hybridization where large number of parental plants are required in order to be able to generate the needed amount of seeds for further studies. Normal crosses continued on plants produced through vine cuttings and the pods were harvested when matured (Fig. 3).



Fig. 3: Cowpea plants produced from vine cuttings with hand-pollinated pods

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