A buttonwood tree is a shrubaceous plant belonging to the family Combretaceae. This species grows on shorelines in tropical and subtropical regions around the world. *Conocarpus erectus* is usually a dense multiple trunked shrub, 1–4 m tall, but can grow into a tree up to 20 m (or) more tall, with a trunk up to 1 m in diameter. The bark is thick and has broad plates of thin scales which are gray to brown. The twigs are brittle and angled (or) narrowly winged in cross-section. The leaves are alternately arranged, simple and oblong, 2–7 cm long and 1–3 cm broad, with a tapering tip and an entire margin. They are dark green and shiny on top and paler with fine silky hairs underneath and have two salt glands at the base of each leaf. The flowers are button like 5 – 8 mm diameter with no petals, they are produced in stalked panicles of 35 - 56 flowers. The fruit is a cluster of red to brown, small scaly, no petals, they are produced in stalked panicles of 35 - 56 flowers. The seed heads burst when ripe and the seeds are dispersed by water. The tree is used for ornamental purpose and widely grown as ornamental hedge as well as a bonsai plant. It is salinity tolerant tree and an important host plant for epiphytes. *Conocarpus* is widely believed to be fodder for the African buffalo and is the source of their acidic urine. The wood is sometimes used in preparations of furniture, however difficult to work but takes a smooth finish. It is also used as firewood and is reported to be good for smoking meat and fish, as it burns very hot and slowly. Cutting is profusely used for propagating the plant. However, it is found that rooting percentage of conocarpus is very minimum and mortality rate is also known to be very high. Further, availability of literature on propagation of button wood tree is also less. In view of this, the study on “Effect of various concentrations of rooting hormones on multiplication of button wood tree (*Conocarpus erectus* L.)” was conducted during the year 2019-2020. Vegetative propagation is adopted in multiplication of conocarpus plants (Rahman et al., 2020). Cutting is profusely used for propagating the plant. However, it is found that rooting percentage of conocarpus is very minimum and mortality rate is also known to be very high. Further, availability of literature on propagation of button wood tree is also less. In view of this, the study on “Effect of various concentrations of rooting hormones on multiplication of button wood tree (*Conocarpus erectus* L.)” was conducted during the year 2019-2020.
RESULTS AND DISCUSSION

A perusal of data presented in Table 1 showed that the hormone and their doses significantly affected the studied growth characters.

The maximum (46.66) number of sprouted cuttings were recorded in 3000 ppm concentration of IBA treatment, followed by 2000 ppm concentration of IBA and 1000 ppm concentration of NAA. The minimum (32.33) number cuttings sprouted in control set. Similar findings were also observed by Dhua et al., (1982) in guava cuttings. According to Thimmappa and Bhattacharjee (1950), auxins naturally occurring (or) exogenously applied are required for initiation of adventitious roots on stems. It appears probable that the success of IBA is due to its low auxin activity and its slow degradation by auxin destroying enzyme. Leopold (1995) suggested that IBA is quite a strong auxin, while NAA is readily destroyed. The results of Singh and Kumar (2014) in mulberry were found to corroborate with the results of present study.

The maximum length of sprout per cutting (15.13 cm) was recorded in 3000 ppm IBA followed by 3000 ppm NAA, while, the minimum average length of sprout per cutting (7.5 cm) was recorded in the control. The maximum average diameter of sprout per cutting (2.5 mm) was observed in 3000 ppm of IBA followed by 2000 ppm of IBA. The minimum average diameter of sprout per cutting (0.86 mm) was recorded in the control. The maximum number of sprouts per cutting with optimum IBA treatments might be ascribed to better root growth which augmented absorption and translocation of nutrients from soil that take active part in various plant metabolic processes (Singh, 2001). These finding were similar to Singh (2013) in Citrus limon with respect to average length and diameter of sprouts per cutting.

The number of leaves per cutting (8.00) were maximum in 3000 ppm of IBA, followed by 2000 ppm of IBA. The minimum (2.33) number of leaves per cutting were recorded in control. Increase in leaf number may be due to vigorous rooting induced by the growth regulator enabling the cuttings to absorb more nutrients and thereby producing more leaves as reported by Stancato et al., (2003).

Among the various concentrations of hormones, 3000 ppm concentration of IBA showed the highest percentage of rooted cutting (93.33), followed by IBA 2000 ppm (53.66) and NAA 1000 ppm (53.00) while, the minimum percentage of rooted cutting (27.66) was recorded in the control. These findings also found to agree with the finding of Panwar et al., (1994) and Singh et al., (2011) in bougainvillea.

The highest number of primary root per cutting was observed in 3000 ppm of IBA.
(16.00) was recorded at 3000 ppm concentration of IBA, while the lowest number of primary root per cutting (6.00) was recorded in control treatment (Table 1). According to Bose et al., (1968) cutting of bougainvillea and other ornamental shrub species produced large number of roots, weight of fresh and dry root when treated with IBA at 3000 - 6000 ppm. The enhanced hydrolytic activity in presence of applied IBA coupled with appropriate planting time might be responsible for the increase number of primary root per cutting (Ghosh et al., 2017).

The maximum number of secondary roots per cutting (31.33) was recorded under 3000 ppm concentrations of IBA followed by 2000 ppm concentration of IBA, while the minimum number of secondary roots per cutting (10.33) was recorded under control treatment. IBA treatment also shortened the time required for root formulation in hard to root species. The above findings also agreed with the finding of Galavi et al., (2013) in Cherry laurel (Prunus laurocerasus) in respect of average number of primary and secondary roots per cutting.

The maximum length of roots per cutting (11.56 cm) was recorded under 3000 ppm concentration of IBA followed by 2000 ppm concentration of IBA, while the minimum average length of roots per cutting (4.50 cm) was recorded under control treatment. Auxin application has been found to enhance the histological features like formation of callus and tissue and differentiation of vascular tissue (Mitra and Bose 1954). These findings agreed with the finding of Galavi et al., (2013) in Grape and Singh et al., (2013) in Thuja compacta with respect to average length of root per cutting.

The maximum number of plants transplanted (42.33) was recorded under 3000 ppm concentration of IBA followed by 2000 ppm concentration of IBA, while the minimum number of plants transplanted (25.00) was recorded under control treatment. The maximum number of plants established (40.33) was recorded under 3000 ppm concentration of IBA followed by 2000 ppm concentration of IBA, while the minimum number of plants established (23.00) was recorded under control treatment.

**CONCLUSION**

Plants can be transplanted on rooting, but good results are often achieved if the plants do not have too many longer roots but have more number of roots. Application of IBA at higher concentration (3000 ppm) was more beneficial for over all parameters of Conocarpus erectus. Hence 3000 ppm concentration of IBA was found most effective for the rooting of Conocarpus erectus semi hard wood cutting and may be used in nurseries for its easy and faster multiplication.

**REFERENCES**


cuttings of *Thuja compacta* under mist house condition. *Hort Flora Research Spectrum*. 2(1): 30-34

