



## DEVELOPMENT AND DOCUMENTATION OF DESCRIPTORS FOR *JATROPHA* (*JATROPHA CURCAS*) AND THEIR HYBRID DERIVATIVES

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**ABSTRACT:** Studies were carried out on *Jatropha* hybrids developed at Mettupalayam to develop and document descriptors, during 2013-2014. The experiment was laid out in row column design with three replications having 27 hybrids as treatments. Observations were recorded on various morphological parameters, both qualitative and quantitative characters. From the observations made it was found that the *Jatropha* hybrids expressed morphological variations from hybrid to hybrid. These available variations can be developed as descriptors as these morphological variations have the ability to distinguish the *Jatropha* hybrids each other. Descriptors were developed for *Jatropha* hybrids after observing 27 hybrids. Among these hybrids, 29 descriptors were developed and documented, which consist of 13 quantitative characters and 16 qualitative characters. Among the characters, six descriptors were developed for plant height characters, nine descriptors for leaf characters, five characters for inflorescence, five characters for fruit and four characters for seed. The developed and documented descriptors will facilitate in plant variety registration, identification of hybrids and also in tree improvement programmes.

**Keywords:** *Jatropha* hybrid, morphological parameters, flower, descriptors, qualitative and quantitative characters.

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The world faces a continual need to increase crop productivity, and to develop new varieties more adapted to changing environmental and biological challenges or to meet the evolving needs of local communities. To meet these needs and challenges, farmers and breeders not only must have access to a wide range of plant genetic resources but also must have access to the essential information about those plant genetic resources that will allow effective use to be made of them ([www.biodiversityinternational.org](http://www.biodiversityinternational.org)). One of the main reasons for the under-utilization of germplasm, according to curators, breeders and other users of plant genetic resources, is the lack of adequate passport, characterization and evaluation data; people cannot use genetic resources that lack essential information. In addition, such information is necessary for proper management of the resources in the gene banks by gene bank managers. Therefore, the accurate documentation of information about the origin, characterization and performance of germplasm is essential for effective conservation and use (Biodiversity, 2007). Any crop improvement programme

will be successful only after assessing our native genetic strength and the possible options towards yield improvement. The information on different species and characters of *Jatropha* will pave the way for possible options towards *Jatropha* yield improvement through interspecific hybridization (Sujatha, 2003), interspecific grafting (Ratha Krishnan et al., 2007) and molecular transformation of traits of interest from one species to another. Success of commercial cultivation of *Jatropha* is much dependent on use of high yielding genotypes instead of low yielding local genotypes. Therefore, genetic improvement of this crop is quite indispensable to develop high-yielding genotypes. Selection/ development of high yielding genotypes depends on the genetic variability present in the gene pool. Acquiring and documenting such in depth knowledge of variability in perennial crops is a mammoth task (Das et al., 2010). Since variability is a prerequisite for selection programme, it is necessary to detect and document the amount of variation existing within and between populations.