

# Biomass and Carbon Storage Potential of *Acacia catechu* Willd. under Low Hill Conditions of Himachal Pradesh

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**Abstract**—*Acacia catechu* Willd. belonging to family Mimosoideae, is a multipurpose moderate sized deciduous tree found throughout the greater parts of India except in very humid and temperate regions. In Himachal Pradesh, it is widely distributed in Mandi, Hamirpur, Kangra, Solan, Sirmaur, Una, Chamba, Shimla and Bilaspur districts below 1300 m elevation. *Catechu* is a valuable bioresource exploited commercially for katha and cutch (tannin) in North India and is also a good nitrogen fixing species. Nitrogen fixers accumulates more carbon in their parts as well as in soil thereby increasing biomass diversity and production. Keeping its great bearing on biomass and carbon storage the present study was focused on *A. catechu* bearing forest types i) Dry Shiwalik Sal forest, ii) Northern Dry Mixed Deciduous forest, iii) Dry Deciduous Scrub forest, iv) Lower Shiwalik Chirpine forest, v) Dry Riverine forest, vi) *A. catechu* plantation. Results revealed that total biomass (90.68 t/ha) and total carbon (45.34t/ha) including other spp. was maximum under Lower Shiwalik Chirpine forest followed by *A. catechu* plantations and Dry Shiwalik Sal forest. However, in case of *A. catechu*, maximum biomass (90.05 /ha) and carbon (54.02t/ha) was observed under *A. catechu* plantation followed by Dry Riverine forest and Northern Dry Mixed Deciduous forest. A very strong linear relationship existed between DBH and total biomass production. Therefore it can be concluded from the study that *A. catechu* is one of the best carbon sequestering nitrogen-fixing tree suitable for low hill conditions of Himachal Pradesh. Further results shall be discussed during the presentation.

**Keywords:** *Acacia catechu*, multipurpose, biomass, carbon storage, low hill,