Journal of Plant Resources (2023) **21**(1), 40-42
https://doi.org/10.3126/bdpr.v21i1.57299

Book Review:

Bijaysal: A Monograph of *Pterocarpus marsupium* in Nepal

Joshi, L., Rajbhandary, S., Paudel, B. S., Rai, S. K., & Khatri, S. (Eds.). (2021). Department of Plant Resources, Ministry of Forests and Environment, Government of Nepal, Kathmandu, Nepal, 2021, pp. 1-86.

Bijaysal (**विजयसाल**) known as *Pterocarpus marsupium* Roxb. is a monogeneric tree species in Nepal but 35 species and seven subspecies in the world. Tropical African countries such as Nigeria, Sierra Leone are seemingly the native home to this genus, has been reported from most of tropical continents except Australia. This is economically highly valuable and beneficial tree both in term of human medicine as well as timber. People are making them alarmingly threatened not only in Nepal but also elsewhere. Understanding this, International Union for Nature Conservation (IUCN) Red List has listed this tree species under the Near Threatened (NT) category.

Nepal government has kept Bijaysal tree species under the governmental priority species. The Department of Forest under the Ministry of Forests and Environment of Nepal has made the Bijaysal Conservation Action Plan for Nepal (2018-2022), the first tree conservation action plan in Nepal.

Sustainable harvesting of both renewable as well as non-renewable natural resources is always a highly challenging and a greatly controversial subject of conservation science. Its knowledge is always constrained by socio-economy as well as environmental variables at definite time and place. Different models have been purposed to explain sustainable harvesting and life history strategies of plant. Optimal control theory

is the one which always seeks scientific knowledge on sustainable harvesting strategies. This theory states that life history of individual species impacts optimal harvesting strategy. Tree species such as *Pterocarpus marsupium* which has a slow growth rate has a lower optimal harvest rate than faster growing tree species.

A monograph of this medium sized, prioritized species with detailed scientific work has been published with the name "Bijaysal (**विजयसाल**)" through National Herbarium and Plant Laboratories, Godawari under the Ministry of Forests and Environment, Nepal. This monograph is an edited book. Editorial board of this book consisted of Joshi, L., Rajbhandary, S., Paudel, B. S., Rai, S. K., and Khatri, S. This book has a foreword of Dr. Pem Narayan Kandel, Secretary, Ministry of Forests and Environment.

This monograph has 11 chapters. This has been written separately in English and Nepali language. Each chapter has scientific information both from the field as well as laboratory works conducted by scientists working not only at Department of Plant Resources, National Herbarium of Nepal Government but also Tribhuvan University as well as non-governmental organization. This book has Nepali version as a separate book too. Nepali version is a direct translation of some major chapters of English version. Translation has been done by Shamik Mishra. The Nepali version has six chapters with three appendices which is highly usable for local people. Six major chapters were translated. All chapters are easily readable and well translated.

All chapters in this book found organized reasonably and scientifically. Some good features inside each chapter have been highlighted as below:

Chapter 1 is about introduction of *Pterocarpus marsupium* species. This chapter tells us about number of this species distributed in the world and where are they distributed geographically.

Chapter 2 is related to taxonomy of this species. Taxonomic naming and nomenclature about this species are included in this chapter. Interestingly, Circar Mountain of Coromandel, British India was the place where William Roxburgh named this species first. This chapter also included a beautiful hand sketch of this plant species with measurement scales.

Chapter 3 is related about reproductive biology. This chapter covers information about how does this species fertilize and produce a viable seed. It also covers information on male and female floral anatomy, flower morphology, pollen viability percentage, anthesis and palynological observations, pollination mechanism, morphology and ontology of fruits and seeds. This chapter highlights that sterile seeds were produced after self-pollination and viable seeds were produced after cross pollination.

Chapter 4 gives details information about internal tissue system or anatomy of stem, leaf, petiole and wood. Details of staining, microtomy and mounting procedures with section photographs are properly described.

Chapter 5 has information about the potential distribution map of *Pterocarpus marsupium* through Ecological Niche Modelling. It also gives information that low land of the far western and central Nepal are suitable sites for this species but not the eastern Nepal.

Chapter 6 included the short synopsis of the Master thesis. This chapter provides information of ecology and population status of this species. This study was conducted at Gwalabari, a community forest in Kanchanpur, West Nepal. Interesting findings such as restricted range of distribution, slow growth rate, poor regeneration and over exploitation are some of the possible reasons of this species to be near threatened.

Chapter 7 shares knowledge about seed germination behavior. Authors of this chapter found a good germination behavior if seeds are pretreated in normal tap water for 24 hours than other treatments.

Chapter 8 compiled economic and ethnobotanical knowledge of this species. Kino gum extracted from trunk of this tree species are said to be highly used as antidiabetic medicine. Besides this, there is much other information of ethnobotanical uses of this tree species.

Chapter 9 provides information about phytochemistry, antioxidant, antidiabetic activities and toxicity of this species. All laboratory results showed that this species has high valuable phytochemicals with antioxidant and antidiabetic properties.

Chapter 10 dealt about anti-microbial activities of different extracts of this species. Authors of this chapter found significant positive results of anti-microbial activities.

Chapter 11 mentioned about threats, conservation and trade of this tree species. Various utensils made from wood of this species have been described. All items have high demand in the market that is causing threats to this species.

Even though with all these chapters, each chapter seems to be finished up in a rush due to reoccurring simple typos. There are figure and tables which almost are cited inside the text but yet some are missed.

Follow up of this work initiated by DPR and KATH is essential for the sake of plant protection and sustainable management not only of *Pterocarpus marsupium* but also for other species too.

Chitra Bahadur Baniya, PhD
Central Department of Botany
Tribhuvan University
Kirtipur, Nepal
Email:cbbaniya@gmail.com