

An extended distribution of Non-Native Tree species *Muntingia calabura* L. in Rajshahi, Bangladesh

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Abstract.

Muntingia calabura is a fast growing evergreen tree and is indigenous to southern Mexico, Central America, tropical South America, the Greater Antilles, St. Vincent and Trinidad. It is now widespread and naturalized in Southeast Asia, Australia, and in islands of the Pacific Ocean due to its ability to disperse by bats and birds. In Bangladesh it is being cultivated in homesteads in some places especially in urban area as a sweet minor edible fruits. During this exploration, three plants of *Muntingia calabura* found in Rajshahi city. It is reported here as an addition to the Flora of Rajshahi district. This paper also envisages plant description, photographs and Figure of herbarium sheet are provided to facilitate easy identification.

Keywords: New taxa; Rajshahi; *Muntingia calabura* ; China cherry.

Introduction

The soil of Rajshahi is made up of Ganges-Brahmaputra sediments and the climate is temperate. As a result, any plant can grow very easily here. From the earliest times, people have come here from different places to settle and spread the plant. Many of these species were naturalized and some have become invasive species over a period of time. This process of plant migration is still going on but now it is not through new immigrant or colonizer but through nurseries and for commercial gain. When someone goes outside the country, he brings a plant of his choice from abroad and it gradually spreads all over the country. This is how the *Muntingia calabura* came to our country and is now spreading. Documentation of the plant species of an area is very important aspect in the field of the taxonomy as well as for further scientific research. Perusal of literature regarding plant resources of the district Rajshahi indicates that a few number of research work have been published by botanists in the form of floristic account and ethnobotanical observation or ethnomedicinal observation. Rhaman (2013) did an extensive work regarding the floristic survey of the district and documented 425 angiosperm species under 108 families. His work was undoubtedly worthy of an admiration. Khan & Huq (1981) was first reported *Muntingia calabura* from Malibagh, Dhaka. Rahman *et al.* (2010) reported it from Bangladesh Agricultural University, Mymensingh. Islam *et al.* (2016) also reported from Sitakunda Ecopark, Chittagong. But *Muntingia calabura* species have not been

reported earlier from the Rajshahi region. The present study records *Muntingia calabura* as a new addition to the flora of Rajshahi as a minor edible fruits city area.

2. Materials and Methods

The authors collected interesting specimens of a tree species during floristic exploration (July 2018 to June 2019) from Railway track side in the Rajshahi city area. After going through various literature and floras, it was confirmed that the specimens was *Muntingia calabura* L. (Ahmed *et al.* 2009; Patel *et al.* 2016; flowers of India). Herbarium specimens were prepared and housed in Department of botany, Abdulpur Government College, Natore.

3. Results and Discussions

On critical examination and perusal of literature, the collected specimens were identified as *Muntingia calabura* L., which is a minor edible fruits tree species hitherto known only from Dhaka, Mynensigh and Chittagong (Khan & Huq. 1981; Rahman *et al.* 2010 & Islam *et al.* 2016). Hence, this taxon is a new addition to the Rajshahi as well as North-Eastern Bangladesh.

4. Taxonomic Treatment

4.1 The Vernacular Name:

It is known as Suji fal, China cherry in Bangladesh. This plant has several vernacular names like straw berry tree, Jamaican cherry in English; Chinese cherry, Japanese cherry in India; Capulin in Guatemala; Jam tree in Sri Lanka. In Rajshahi this plant known as “Cherry”

4.2 General History of Distribution:

The Jamaica cherry is indigenous to southern Mexico, Central America, tropical South America, the Greater Antilles, St. Vincent and Trinidad. The type specimen was collected in Jamaica. By the early 1900s, *Muntingia* was popular in Southeast Asia. Today, *Muntingia* is very popular throughout Southeast Asia, especially in the Philippines. It is widely cultivated in warm areas in India, south-east Asia, Malaya, Indonesia, and the Philippines, in many places so thoroughly naturalized that it is thought by the local people to be native. In Bangladesh, it is spreading in different parts through urban amateur fruit orchards owner and nursery men, maybe one day it will become naturalized in this country.

4.3 Taxonomic Description:

Muntingia calabura L., (Figure 1). Trees, to 6 m high with spreading, nearly horizontal branches; branchlets densely villous, glandular pubescent. Leaves evergreen, simple, alternate; stipules 1 linear, 5 mm long, lateral, filiform, hairy; petiole 5mm long; lamina 6-10 × 2-4 cm, lanceolate or oblonglanceolate, base obliquely subcordate, apex acuminate, margin serrate, glandular hairy above, woolly beneath; lateral nerves 3-5 pairs, pinnate, prominent. Inflorescences supraaxillary, usually 1flowered. Flowers bisexual, 1.53 cm across, white; pedicels 2.5 cm long; sepals 5, 1.5 cm long, lanceolate, valvate, shortly connate at base, densely pubescent; petals 5, thin, ovate, obovate or suborbicular, shortly clawed, entire, imbricate, crumpled in bud; intrastaminal disc annular, bearing a ring of hairs on the exterior margin; stamens many, yellow, ca. 1 cm long; filaments filiform; ovary superior, ellipsoid, 5celled, ovules many. Fruit a berry, 1-1.3 cm across, red, subglobular; seeds many, obovoid ellipsoid, many. Flowers & Fruits: Throughout the year.

2.4 Uses:

This plant is commonly planted as an ornamental shade tree, and for its edible sweet fruits, which are eaten raw or cooked into jams and preserve. The berries are sold in local Mexican markets and are very popular in the Philippines with children. The sapwood is yellowish, the heartwood red-dish-brown and useful for interior sheathing, small boxes, casks, and general carpentry. The wood is valued mostly as fuel, for it ignites quickly, burns with intense heat and gives off very little smoke. Wood is being evaluated in Brazil as a source of paper pulp. The bark is commonly used for lashing together the supports of rural houses. Bark yields a very strong, soft fiber for twine and large ropes. The flowers are said to possess antiseptic properties. An infusion of the flowers is valued as an antispasmodic. It is taken to relieve headache and the first symptoms of a cold. A number of bioactive compounds, mostly flavonoids (flavones, flavanones and flavans), have been isolated from the roots, bark, wood, leaves and flowers of *M. calabura*. Extracts containing these compounds have been reported to have antioxidant, antimicrobial, anti-inflammatory, antidiabetic, anticancer, hypotensive and antipyretic properties among others, so the species has great potential for the development of plant-derived drugs. All parts of the plant, namely the leaves, fruits, flowers, stem bark, bark, and roots have been used traditionally to treat various ailments (Sarojini and Mounika 2018). In Brazil, it is used as fish feed and fiber and cellulose production (Figueiredo, R.A. *et al.* 2008). In Bangladesh, Pasha and Uddin (2019) mentioned this plant as a cultivated tree for minor fruits.

2.5. Specimens Examined:

Bangladesh, Rajshahi, Railway track side near Vadra Rail crossing, Rajshahi city, 24°22'32.0"N 88°37'21.8"E, 12 March 2019, MTH 3819 (Department of Botany, Abdulpur Govt. College, Natore) (Figure-3).



Fig1. Location Map of Study area (Rajshahi) and early reported area of *M. calabura* form Bangladesh

2.6. Systematic Position

The older Cronquist system placed *Muntingia* genera in the family *Tiliaceae*. As per Bayer *et al.* (1998) and onward this genus placed in the new family *Muntingiaceae*. Though Patel *et al.* (2016) described it as a member of *Elaeocarpaceae*.



Fig 2: *Muntingia calabura* L.; a. Habit; b. Flower



Fig 3: Herbarium sheet of *Muntingia calabura* L.

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