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AREVIEW

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Pride of India [*Lagerstroemia speciosa* (L.) Pers.] forming a silver bullet for 21st century

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INTRODUCTION

Lagerstroemia speciosa awarded as 'Pride of India' propounds a wide spectrum of popularity due to its attractive and scenic prettiness. Its pleasant beauty accompanied by a spectacular blooming makes it highlighted as 'Queen among the flowers'. Locally it is known as a 'Jarul' in Hindi, 'Taman' in Marathi, 'Kramuka' in Sanskrit, 'Kadali' in Tamil Nadu, 'Banaba' in Oriya and 'Queen Crape Myrtle' for trade purpose (Gilman and Watson, 1993). It is well known member of 'Lythraceae' tracing origin to 'Tropical Southern Asia' (Ellis *et al.,* 2007).

Ornamental characteristics of *Lagerstroemia speciosa*:

Morphological features especially their flowers blessed with lavender, pink, purple, red and white 6-10 inches cluster bloom with ruffled and crinkly appearance. Generally, it flowers in spring but summer flowering is showy. The upright spreading, vase-shaped stunning canopy distribution, bark surface with papery flakes, goudy trunk and light buttressed formation formulates banaba as center of allurement. It ameliorates road side-avenue plantation, gardens, landscapes, parking lots and homesteads. Beside its cosmic adorning potential, it offers a huge scope of multipurpose benefits. This article tries to compile the ornamental character along with invaluable biological and chemical prospective which would serve as 'silver bullet' of ever increasing inhabitants.

Multipurpose benefits obtain from banaba :

Lagerstroemia speciosa exhibits moderately hard timber properties thus, consistently utilized for making decorative furniture, agriculture implements, ploughs, boats, posts, rafts and beams. Their capsular fruits make it suitable for interior decoration (Pandey, 2012). Powdered leaves form a reagent for coloring hairs (Gilman and Watson, 1993). Pruned branches can be composted and used as qualitative biofertilizer (Sannigorahi, 2009). Being a fodder component, it shows a positive attributes (Chhetri, 2010). Presently, rearing

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of tussar silk worm on *Lagerstroemia speciosa* leaves was found to be more profitable (Pandey, 2012). It constitutes a dominant transitional pool between closed evergreen forest and woodlots of deciduous forests (Mui, 2006). It has an ability to survive under adverse locality of drought prone areas. Hence, preferred on deeply eroded and heavy polluted sites for afforestation purpose (Madulid *et al.,* 2010). Also, a notable potential was found to sequester carbon from the environment, assures its significance in ecological restoration (Pandey and Singh, 2011).

Phytoactive potential of banaba :

Plant originated active ingredients have been used for wide variety of pharmacological applications and physiotherapy treatments. From this point of view, Banaba serve as a splendid source of drugs. However, it has been traditionally used as a folklore medicine to cure local aliments. It has long been used as effective medicine against diarrhea, abdominal pain from time immoral (Gonzaga *et al.,* 2013). Leaves support as a natural health supplement, so act as a febrifuge and cleansing agent to regulate metabolic processes (Laruan *et al.,* 2013). Their leaf poultice provides relief from malarial fever and applied on cracked feet (Orwa *et al.,* 2009). Leaf beverage (tea) is largely consumed to aid weight loss (Wagner *et al.,* 2011) and chiefly for dissolving kidney stone (Unno *et al.,* 2000). It contains many pharmaceutical active ingredients in leaves and fruits such as ellagitannins (Lagerstroemin, Reginin A, Flosin B, Reganin C and D by Takeo *et al.,* 2002), alanine, methionine, lageracetal, amyl alcohol, B-sitosterol (Kontala *et al.,* 2013) would serve as raw material for pharmaceutical industries. Tea prepared from banaba leaves were reported to possesses anti-oxidative (Anil *et al.,* 2010), anti-inflammatory (Priya *et al.,* 2008), anti-hypertension (Yamaguchi *et al.,* 2006), diuretic (Fernando *et al.,* 2004), purgative (Saraswati *et al.,* 2011), anti-ulcer activity (Kastuji *et al.,* 2003) and anti-gout remediation (Unno *et al.,* 2000). Some tannin has shown novel anti-HIV assets through the presence of 'Gallic acid and Ellagic acid'. Therefore, could be regarded as a superficial candidate for the development of anti-HIV medicinal preparations (Nutan *et al.,* 2013 and Evans *et al.,* 2002).Many studies have established its hypoglycemic property which regulates glucose transport in blood cells (Shareef *et al.,* 2012 and Vijaykumar *et al.,* 2006). As well as it specifies insulin-like principle because of strong evidence of 'Corosolic acid' responsible in addressing anti-diabetic formulations (Miura *et al.,* 2012; Saumya and Basha, 2011). Apart from this numerous medicinal potentiality, fruits were used as local application for aphthae of mouth. Their seeds were serving as source of narcotic preparations. Bark and leaves together effective as purgative whereas its root illustrates astringent application (Kontala *et al.,* 2013).

Glance over the benefits, Banaba would premediate a keen demand of millions of people worldwide. Consequently, it yields spectacular returns through investment on large scale plantations. It would places enormous privilege to supply raw material for pharmaceutical and cosmetic industries. Thus, the practical oriented qualitative plantations of *Lagerstroemia speciosa* should be implemented on massive scale. It becomes supportive to a year-round oppournities to gain income of growers. Also, it will assist further studies on the pharmacologically active constituents coming to play much more significant role in the supply of drug potential.

Fig. 1 : ***Lagerstroemia speciosa*** **[L.] Pers**

REFERENCES

Anil, P., Manish, S., Garvendra, R.S., Vijay, B. and Tarachand, K. (2010). In vitro anti-oxidant studies of *Lagerstroemia speciosa* leaves. *Pharmacogn. J.*, **2**(10): 357-360.

Chhetri, R.B. (2010). Some fodder yielding trees of Meghalaya, N-E India. *Indian J. Trad. Knowl.*, **9**(4): 786-790.

Ellis, R.H., Mai-hung, T., Hong, T.D., Tan, T.T., Xuan-chuong, H.D., Hung, L.Q., Ngoc-tam, B. and Le-Tam, V.T. (2007). Comparative analysis by protocol and key of seed storage behaviour of sixty Vietnamese tree species. *Seed Sci. & Technol.*, **35** (2) : 460-476.

Evans, W.C., Trease, G.E., Evans, D. and Evans (2002). Trease and evans pharmacnosy, 15th Ed., (New York: Elsevier health sciences), 224pp.

Fernando, E.S., Sun, B.Y., Sun, M.H., Kong, H.Y. and Koh, K.S. (2004). Flowering plants and ferns of Mt. makilling. Reports, ASEAN- Korean Environmental unit, Seoul, Korea.

Gilman, E.F. and Watson, D.G. (1993). *Lagerstroemia indica*: Crape myrtle. Adopted from fact sheet of ST-342, a series of the environmental horticulture department, Florida extension service, Institute of Food and Agriculture Sciences, 14pp.

Gonzaga, J.L., Bonifacio, J.S., Dumbrique, J.R., Gutierruz, J.O., Jimenez, C.R., Mendoza, C.S., Polido, P.B., Rasalan, M.G., Sampan, I.R., Siocson, M.S., So, C.M., Solis, V.D. and Taguinod, M.J. (2013). Thin layer chromatography methods in characterization and stability analyses of the aqueous and dichloromethane extracts of *Lagerstroemia speciosa* L. (Fam. - Lythraceae) leaves. 2nd International conference on Medicinal chemistry and Computer aided drug designing). 3-4pp.

Kastuji, H., Naoe, S., Tomo, S., Shunsuke, T., Takeo, H., Ryoji, K., Kazoo, Y. and Osamu, H. (2003). Activation of insulin receptors by Lagerstroemin. *J. Pharam. Sci.*, **93** (1) : 69-73.

Kontala, M., Chakaramorthi, G.S. and Mazumdar, A. (2013) Lagerstroemia species: A current review. *Internat. J. Pharma. Tech. Res.*, **5**(3): 906-909.

Laruan, L.M.V., Balangcod, T., Balangcod, K., Patacsil, M., Apastol, O., Manuel, J., Cortez, S. and Vallejn, V. (2013). Phytochemical and antibacterial study of *Lagerstroemia* (L.) Pers and its ethno-medicinal importance to indigenous communities of Benguet provinence, Philippines. *Indian J. Trad. Knowl.*, **12**(3): 379-383.

Miura, T., Takagis, S. and Ishida, T. (2012). Management of diabetes and its complications with Banaba (*Lagerstroemia speciosa* L.) and Corosolic acid. Evidence based complementary and alternative medicine, 1-8pp.

Mui, N.T. (2006). Country pastures/ forage resource profiles, Vietnam, Food and Agriculture Organization Reports, 1-26pp.

Nutan, Modi, M., Goel, T., Das, T., Malik, S., Suri, S., Singh-Rawat, A.K., Srivastava, S.K., Tuli, R., Malhotra, S. and Gupta, S.K. (2013). Ellagic acid and Gallic acid from *Lagerstroemia speciosa* L. inhibit HIV-1 infection through inhibition of HIV-1 reverse protease and transcriptase activity. *Indian J. Med. Res.*, **137** (3) : 540-548.

Pandey, S.K. and Singh, H. (2011). Carbon sequestration in dry tropical forests of Vindhyan highlands (IIJFRO Symposium on 'Short rotation forestry: Synergies food-wood production and environmental amelioration' (Feb-10-12, 2011), Punjab Agricultural University, Ludhiana, (PUNJAB) INDIA.

Priya, T.T., Sabu, M.C. and Jolly, C.L. (2008). Free radicle scavenging and anti-inflamatory properties of *Lagerstroemia speciosa* (L.). *Inflammopharmacology*, **16**(4) : 182-187.

Sannigorahi, A.K. (2009). Biodegradation of leaf litter of tree species in the presence of cow dung and earthworms. *Indian J. Biotech.*, **8** (3) : 335-338.

Saraswati, V.S., Tirumalai, D., Yadav, P.K. amd Saranya, M. (2011). Pharamacognostic and preliminary phytochemical study of *Lagerstroemia speciosa* leaves. *Internat. J. Res. Ayurv. & Pharm.*, **2** (3) : 893-898.

Saumya, S.M. and Basha, P.M. (2011). Antioxidant effect of *Lagerstroemia speciosa* (L.) Pers (Banaba) leaf extract in streptozotocin induced diabetic mice. *Indian J. Exp. Biol.*, **49** (2) : 125-131.

Shareef, S.M., Sridhar, I., Mishra, S.S. and Yenkata, R.Y. (2012). Evaluation of hypoglycemic effect of *Lagerstroemia speciosa* (Banaba) leaf extract in alloxan induced diabetic rabbits. *Int. J. Med. Res. Health Sci.*, **2** (2) : 217-222.

Takeo, H., Haruko, M., Royji, K., Katsuji, H., Shunsuke, J., Osamu, H., Kazoo, Y. and Takashi, T. (2002). Ellagitannins from *Lagerstroemia speciosa* as activators of glucose transport in fat cells. *Plant Med.*, **68** (2) : 173-175.

Unno, T., Sakane, I. and Kakuda, T. (2000). Inhibition of Xanthine oxidase by an aqueous extract of Banaba leaves (*Lagerstroemia speciosa*). *J. Japanese Society Food Sci. & Technol.*, **47** (9) : 740-943.

Vijaykumar, K., Murthy, P.B., Kannbabu, S., Syamasundar, B. and Subbaraju, G.V. (2006). Quantitative determination of Corosolic acid in *Lagerstroemia speciosa* leaves, extracts

and dosage forms. *Int. J. Appl. Sci. Engg.*, **4**(2): 103-114.

Wagner, S.T., Jose, E.S., Rodolfo, A.B. and Jose, C.Z. (2011). Scientific note: *Lagerstroemia speciosa* (L.) Pers (Lythraceae), A new host for the defoliator *Okieticus kirbyi* guilding (1827), (Lepidoptera: Psychidae). *Trop. Lepid. Res.*, **20**(2): 100-104.

Yamaguchi, Y., Yamada, K., Yashikawa, N.J., Nakamura, K., Haginaka, J. and Kunimoto, M. (2006). Corosolic acid prevents oxidative stress, inflammation and hypertension in SHR/NDmcr-cp rats, a model of metabolic syndrome. *Life Sci.*, **76**(26): 2474-279.

■ WEBLIOGRAPHY

Orwa, C., Mutual, A., Kindt, R., Jamnadas, R. and Simons, A. (2009). Agroforestry database: A tree reference and selection guide version 4.0 *http://www.worldwide agroforestry.org/af/tree.db/.*

Pandey, P. (2012). Economic importance of tree species. Compiled as E-book. 35-36pp. *http://www.greeen cleanguide.com.*