INTRODUCTION

Hevea brasiliensis is a tree belongs to the family Euphorbiaceae.1 This is commonly known as Rubber in Tamil, English and Malayalam.2 Rubber is native to the Amazon region.3 Today rubber plantations are found in several countries in the tropics from its native habitat in the Amazon Basin to Guatemala, Mexico, Brazil, Venezuela, Ecuador, Colombia, Peru, Bolivia, Nigeria, Liberia, and East and West African countries.4 Other countries in Asia involved in rubber plantations are China, Vietnam, India, Sri Lanka, Philippines, Myanmar, and Cambodia.5 In India, Kerala and Tamil Naidu together constitute the traditional rubber growing regions.6 The rubber tree begins to produce fruit at 4 years of age. Tapping begins when trees are 5–8 years old, depending on the area, and increases every year until a maximum at about 20 years, then yield sustained for 40–50 years or more.7 Rubber is produced year round, with great fluctuations month to month. An average pre-war yield for unselected trees was about 300–450 kg latex/ha; about twice that for bud-grafted trees of approved clones and 700–2,000 kg latex/ha for improved plantings.8 The natural rubber is obtained by tapping the trunks of the trees. The latex coagulates with the aid of acetic acid, formic acid, and alum. Cured rubber used for all types of rubber products.9–10 Seeds are source of Para rubber seed oil is recommended for manufacture of soap and biodiesel.11 Although poisonous, seeds can be eaten as a famine food after processing. Boiling removes the poison and releases the oil which can be utilized for illumination.12 Seeds are sometimes eaten off by the cattle. Kernels (50–60% of the seed) contain 40–50% of semi-drying pale yellow oil which is used in soap making, paints, varnishes, and is effective against houseflies and lice.13 The present study is about the primary infection of the bacteria which will easily spread from one tree to another. At the beginning stage of the infection, yellow leaf spot appeared in the leaves is the symptom of the blight disease.

MATERIALS AND METHODS

Collection, Isolation, Purification

The leaves were collected from the affected tree at Noorul Islam university campus Kumaracoil, Kanyakumari District in Tamilnadu. The leaves were washed with distilled water. From the surfaced sterilized leaves, the infected potions were cut into small round piece with the help of well sterilized gel puncher. The leaf pieces were placed on to the standard nutrient agar plate. It is incubated at 37°C for 24 hours. After the incubation many small colonies were appeared on the margin of the cut pieces of the leaves. These colonies were again selected and inoculate into the nutrient broth for subculture. The subcultures were taken and streaked in to a nutrient agar plate for pureculture and incubate at 37°C for 24 hours. Then the bacteria from the pure colony were taken and stained with standard Gram staining which is subjected for microscopic observation.

RESULTS AND DISCUSSION

The normal leaves and the infected leaves were shown in the figure 1 & 2. The infected leaf potions were cut into small pieces and put in the agar plate were the colonies of bacteria appeared on the margins of the leaf cuttings. [Plate: 1] The subculture streaked in the nutrient agar produce lot of small round pin head size individual colonies in the culture plate. [Plate: 2] Based on the observation of the morphological and staining pattern of the bacteria, the bacteria which cause the yellow spot is
identified as *Xanthomonas campestris*. The shape of the bacteria is rod shaped and individual colony is about pinhead in size.

The bacteria are of gram negative type. There are previous reports that *Xanthomonas campestris* can sustained in rubber latex.\textsuperscript{14} Based upon the previous report of occurrence of the bacteria in the rubber latex, the rod shaped morphological characteristics and formation of small round colonies and the gram negative staining character of the bacteria revealed that the causative organism is *Xanthomonas campestris*.

As far as the authors aware that this is the first report about the occurrence of this disease in Tamilnadu and Kerala. It is only a beginning stage of infection of the disease and it occurs less than one percent of the population in the rubber plantation.

In the trees in addition to the primary infection of the bacterial disease secondary infection by fungi was also noticed.

**CONCLUSION**

Because of the infection of the bacterial and fungal disease, the yield potential of the rubber trees will be affected. As it is a bacterial borne disease there is a possibility of becoming an epidemic disease in due course.

Further work is needed to identify the fungus which is also causing the leaf spot disease which occurs in this crop. So preventive measures can be taken to control the disease at the earliest possible in order to avoid the economic lose.

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