GGTP levels in the groups treated with silymarin and ethyl acetate extract of *S. brevistigma*. The enzyme levels were almost restored to the normal.

It was observed that the size of the liver was enlarged in CCl₄-intoxicated rats but it was normal in drug-treated groups. A significant reduction (P < 0.001) in liver weight supports this finding.

It was found that the extract decreased the CCl₄-induced elevated levels of the enzymes in group third and fourth, indicating the production of structural integrity of hepatocytic cell membrane or regeneration of damaged liver cells by the extract.

Histopathological examination of the liver section of the rats treated with toxicant showed intense centrilobular necrosis and vacuolization. The rats treated with silymarin and extracts along with toxicant showed sign of protection against these toxicants to considerable extent as evident from formation of normal hepatic cards and absence of necrosis and vacuoles.

Decrease in serum bilirubin after treatment with the extract in liver damage indicated the effectiveness of the extract in normal functional status of the liver. The preliminary phytochemical studies revealed the presence of flavonoids in ethyl acetate extract of *S. brevistigma*; various flavonoids have been reported for their hepatoprotective activity\(^2\). So the hepatoprotective effect of *S. brevistigma* may be due to its flavonoid content.

The most prevalent species of human malaria parasite reported in India is *Plasmodium vivax* accounting for nearly 65% cases in the country followed by *Plasmodium falciparum* contributing about 35% malaria case load and *Plasmodium malariae* with only a few thousands cases recorded from few foothill areas in Orissa state\(^1\). Occurrence of *Plasmodium ovale*, the fourth malaria parasite species, has not been very common in India and till date only three reports of *P. ovale* are available from Kolkata\(^2\), Orissa\(^3\) and more recently from Delhi\(^4\). Here we report the finding of a case of *P. ovale* from Jorhat district of Assam, which is the first from the northeastern region of India.

During our longitudinal malaria epidemiologic investigation (April 2001–October 2002) in a village under Titabor Primary Health Centre of Jorhat district, the blood smear from 'GT', a 28-year-old male, was collected on 17 February 2002 by the surveillance worker during routine active case detection visit in that village. At the time of blood smear collection the patient gave the history of intermittent high fever for the past 4–5 days accompanied by chill and rigor, bodyache and vomiting. He was administered presumptive treatment of 600 mg chloroquine after collecting the blood smear. The blood smear was stained with JSB (Jaswant Singh & Bhattacharya) stain and examined on 22 February 2002 in the field laboratory. The smear was positive for malaria parasite which looked like *P. vivax* in thick smear at first glance. However, careful examination of thin smear revealed it as *P. ovale* on the basis of specific morphological characteristics\(^5\). Many infected red blood corpuscles were oval in shape, some were fimbriated on one or both ends with heavy coarse Schuffner’s stippling even in early trophozoite stage. The cytoplasm of the growing parasite was thick, compact and usually not amoeboid (Figure 1) and schizonts had 7–8 merozoites. All these features of the parasite and infected RBCs were confirmatory for *P. ovale*. Subsequently, the identification of *P. ovale* was confirmed at Faculty of Tropical Medicine, Mahidol University, Bangkok and at Wellcome-Mahidol University-Oxford Tropical Medicine Research Unit, Bangkok. On 23 February 2002, the patient was clinically examined, a follow-up slide was taken and treated radically with 1200 mg chloroquine and 75 mg primaquine (15 mg × 5 days). The moderately anaemic patient during clinical examination was found with resolved symptoms. His liver was unpalpable whereas the spleen was soft, tender and one finger enlarged. No malaria parasite was seen in the follow-up slide, indicating that the patient responded positively to the 600 mg presumptive treatment of chloroquine. The patient was followed up at fortnightly intervals until October 2002 during which he was neither found to suffer from any febrile episode of fever nor was presence of malaria parasite detected in blood smears.

**Plasmodium ovale**: First case report from Assam, India


Received 1 August 2002; revised accepted 3 March 2003

**M. G. SETHURAMAN**

**K. G. LALITHA**

**B. RAJ KAPOOR**

*Department of Chemistry, Gandhigram Rural Institute, Gandhigram 624 302, India*

*Annai J.K.K. Sampoorani Ammal College of Pharmacy, B. Komarapalayam 638 183, India*

*Department of Pharmacology, Vinayaka Mission’s College of Pharmacy, Yercaud Main Road, Salem 636 008, India*

*For correspondence. (e-mail: )*
Fossilized elephant bones in the Quaternary gypsum deposits at Bhadawasi, Nagaur district, Rajasthan

We report here fossilized remains of an elephant discovered in a gypsum bed during its mining at Bhadawasi village in Nagaur district of western Rajasthan. The skeletal remains were embedded within the Quaternary gypsum below a sand cover of about 2.6 m. Fossil remains collected include: a part of femur, proximal head of femur, a piece of tibia, a large fragment of scapula, one of the vertebrae – probably a lumbar and many pieces of broken ribs. These findings suggest forested conditions along a river (?) Vedic Sarasvati) at the time. Presently the region is occupied by the Thar Desert.

Fossilized bones of a large mammal were discovered recently in the gypsum bed of the Quaternary age at Bhadawasi village (27°14′: 73°40′) located about 20 km from Nagaur town on the Nagaur–Bikaner road (Figure 1) during the mining of gypsum. The gypsum mine (Figure 2) in which the remains were found is about 2–3 m deep and is located in the land of Adu Ram, a local farmer. This is the first report of the presence of fossil remains of a large mammal in the