

TOXORHYNCHITES RUTILUS
SEPTENTRIONALIS FEEDING ON
TREE SAP

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Consumed carbohydrates appear to be the major source of energy for mosquito flight and routine metabolic maintenance (Hocking 1953, Nayar and Van Handel 1971). These carbohydrates are obtained from a variety of sources including floral and extra-floral nectaries, honeydew, and fruit juices (Haeger 1955, Downes 1958, Sandholm and Price 1962, Bidlingmayer and Hem 1973, Grimstad and DeFoliart 1974). This report describes the use of tree sap as a source of plant juices by the mosquito *Toxorhynchites rutilus septentrionalis* (Dyar and Knab).

On May 17, 1986, an 18 cm diameter black oak (*Quercus velutina*) with a fresh cut in the bark was observed in a large mixed hardwood forest located in Chicot State Park (Evangeline Parish) Louisiana. Several trees with buttress roots or other water-holding cavities were located in the general area. The cut in the bark of the oak tree was ca. 8 cm long \times 1.5 cm deep, and penetrated into the vascular tissue. Large quantities of liquid sap were leaking from the cut and dripping down the bark of the tree.

Honeybees, a variety of butterflies and sphingid moths, beetles (Tenebrionidae, Staphylinidae, Erotylidae), ants, and flies (Drosophilidae, Calliphoridae, Muscidae) were actively feeding on the leaking sap, which had a strong acetic acid aroma and appeared to be fermenting. At 1730 hr, a male *Tx. rutilus*

septentrionalis landed on the tree and walked toward the cut while probing the bark with the proboscis. When it reached the cut containing the liquid sap, it probed into the fluid, then remained in a position with the proboscis in the fluid for ca. 10 min. It then walked 5 cm from the cut and remained motionless for ca. 30 min, until disturbed by the author.

This observation indicates that mosquitoes may feed upon tree sap that is liberated by some type of trauma. Also, it suggests that the mosquito located the sap using olfactory cues, since no visual cues indicative of a nectar source could have led the mosquito to that site. Several volatile chemicals, including ethanol, methanol, and acetaldehyde, are produced by fermenting sap (Moeck 1970). If olfactory cues are used in the location of plant juices by mosquitoes, it may be possible to study nectar-feeding periodicities by a modification of the technique known as "sugaring," which consists of smearing a fermenting mixture of sweet liquids on the bark of a tree (Borrer et al. 1981).

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