UNDISPERSED P-PROTEIN BODIES IN THE
MATURE SIEVE TUBE ELEMENTS OF
THE PETIOLE OF LAGENARIA

Petiole of Lagenaria leucantha (Duch.) Rusby was
fixed in FAA.1 Sections and macerated material
were stained with a combination of tannic acid,
ferric chloride, and resorcin blue.2 Mercuric
bromphenol blue3 was used to confirm the protein-
aceous nature of the P-protein.

The petiole of Lagenaria leucantha shows about
9–10 vascular bundles with outer and inner phloem.
Some of the mature sieve tube elements of the
external phloem showed numerous spherical or
oval P-protein bodies. They are normally peripher-
ally situated and seen appressed to the peripheral
cytoplasm (Figs. 1, 2). Test with bromphenol blue
indicated their proteinaceous nature. Sieve tube
elements with such undispersed P-protein bodies
were enucleate and randomly scattered in the external
phloem (Fig. 1). A transverse sieve plate shows
numerous callose lined sieve pores (Fig. 3). Number
of pores varies from 42–65 and the diameter of
the pores, 3–5 μm. Most of the undispersed
P-protein bodies are not disturbed from their per-
ipheral position in the sectioned and macerated
material. Occasionally they may lie against the
sieve plate (Fig. 3), but they do not constitute a
P-protein plug which is observed in a sieve tube
element where P-protein was in dispersed state.

Similar undispersed P-protein bodies in the mature
sieve tube elements were reported by Cronshaw and
Esau4 in Cucurbita. But they were extra fascicular
sieve tube elements in petiole and stem of Cucurbita.
In the petiole of Lagenaria leucantha similar sieve
tube elements form a part of the external phloem
of the vascular bundle. We have failed to observe
them in the internal phloem. Dispersed P-protein
is a normal structural feature in a mature function-
ing sieve tube element. The presence of P-protein
body is usually a feature of developing sieve tube
element. Its presence in the mature sieve tube
elements of the petiole of Lagenaria not only
reflects varying behaviour of P-protein, but also
complicates the determination of its role in trans-
location.

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