

ANATOMY OF JUNIPER (*JUNIPERUS EXCELSA*) SEED

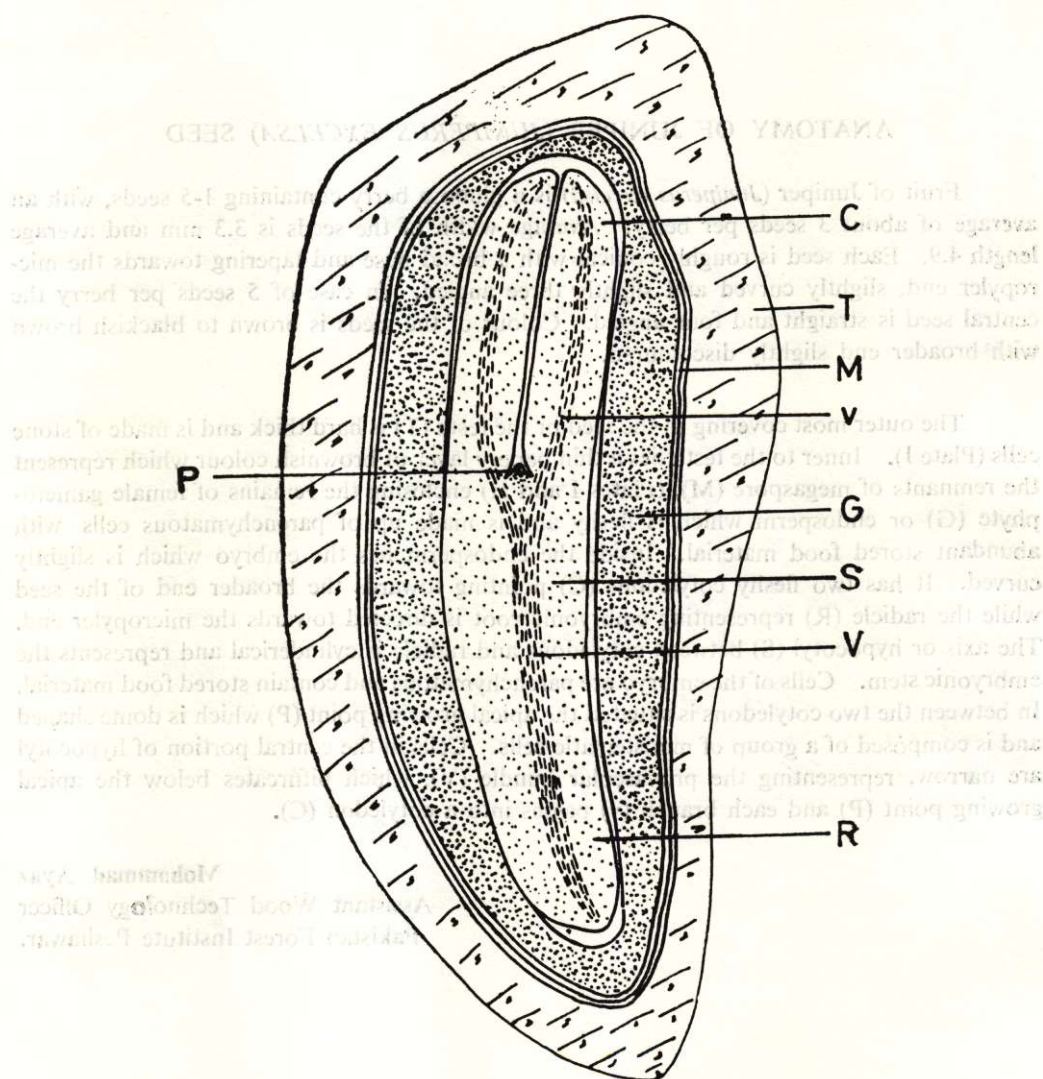
Fruit of Juniper (*Juniperus excelsa*) is a globose berry containing 1-5 seeds, with an average of about 3 seeds per berry. Average width of the seeds is 3.3 mm and average length 4.9. Each seed is roughly conical with a broad base and tapering towards the micropylar end, slightly curved and slightly three angled. In case of 5 seeds per berry the central seed is straight and four angled. Colour of the seeds is brown to blackish brown with broader end slightly discoloured.

The outer most covering of the seed or the testa (T) is hard thick and is made of stone cells (Plate I). Inner to the testa lies a thin papery layer of brownish colour which represent the remnants of megaspore (M), (Plates I and II) enclosing the remains of female gametophyte (G) or endosperm which is fleshy and is made up of parenchymatous cells with abundant stored food material. Inside the endosperm lies the embryo which is slightly curved. It has two fleshy cotyledons (C) pointing towards the broader end of the seed while the radicle (R) representing embryonic root is directed towards the micropylar end. The axis or hypocotyl (S) between cotyledons and radicle is cylindrical and represents the embryonic stem. Cells of the embryo are parenchymatous and contain stored food material. In between the two cotyledons is situated the apical growing point (P) which is dome shaped and is composed of a group of meristematic cells. Cells in the central portion of hypocotyl are narrow, representing the provascular bundle (V), which bifurcates below the apical growing point (P) and each branch (v) passes into a cotyledon (C).

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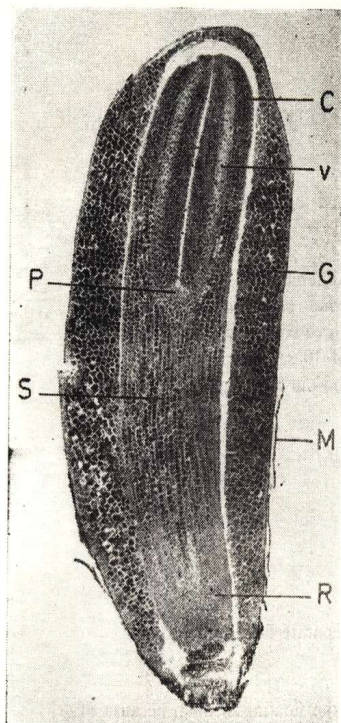
A schematic drawing showing the juniper seed in longitudinal section. (20 times the actual size).

T—Testa
M—Remnants of megaspore
G—Endosperm
C—Cotyledon
R—Radicle
V—Provascular bundle of hypocotyl
P—Apical point
S—Hypocotyl

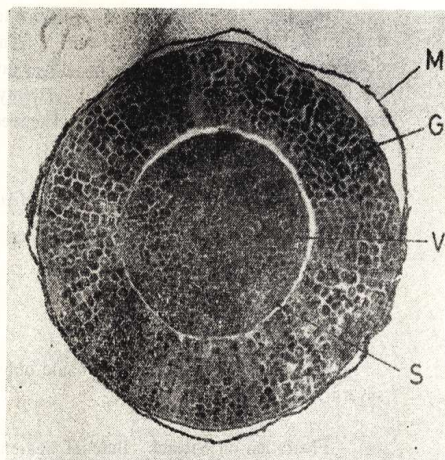


A schematic drawing showing the Juniper seed in medium longitudinal section. (20 times the actual size)

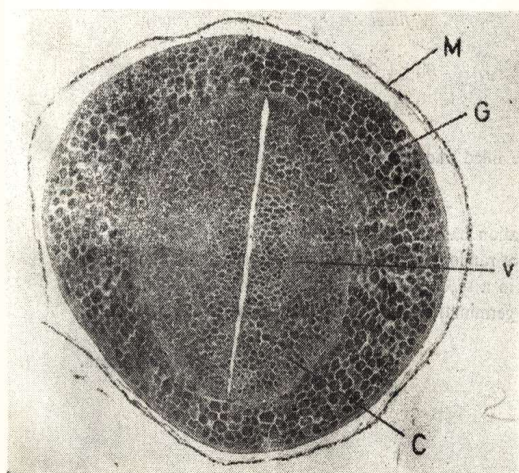
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|------------------------|-----------------------------------|
| T—Testa | S—Hypocotyl |
| M—Remains of megaspore | P—Apical point |
| G—Endosperm | V—Provascular bundle of hypocotyl |
| C—Cotyledon | |
| R—Radicle | —Provascular bundle of cotyledon |



Longitudinal section of Juniper seed with testa removed. 20 X



A cross section of the Juniper seed with testa removed passing across the hypocotyl. 30 X



A cross section of Juniper seed with testa removed passing across the cotyledons. 30 X