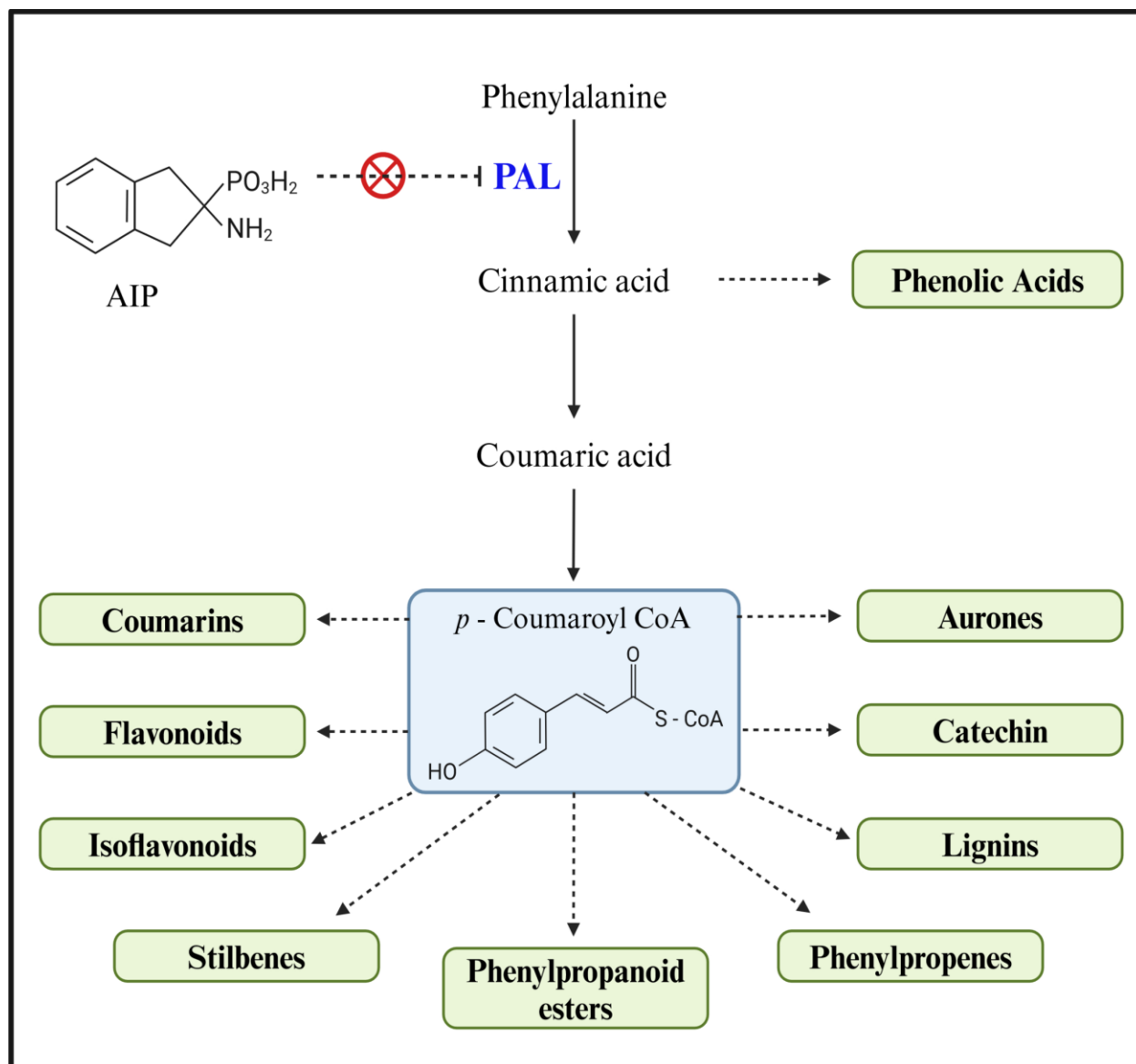
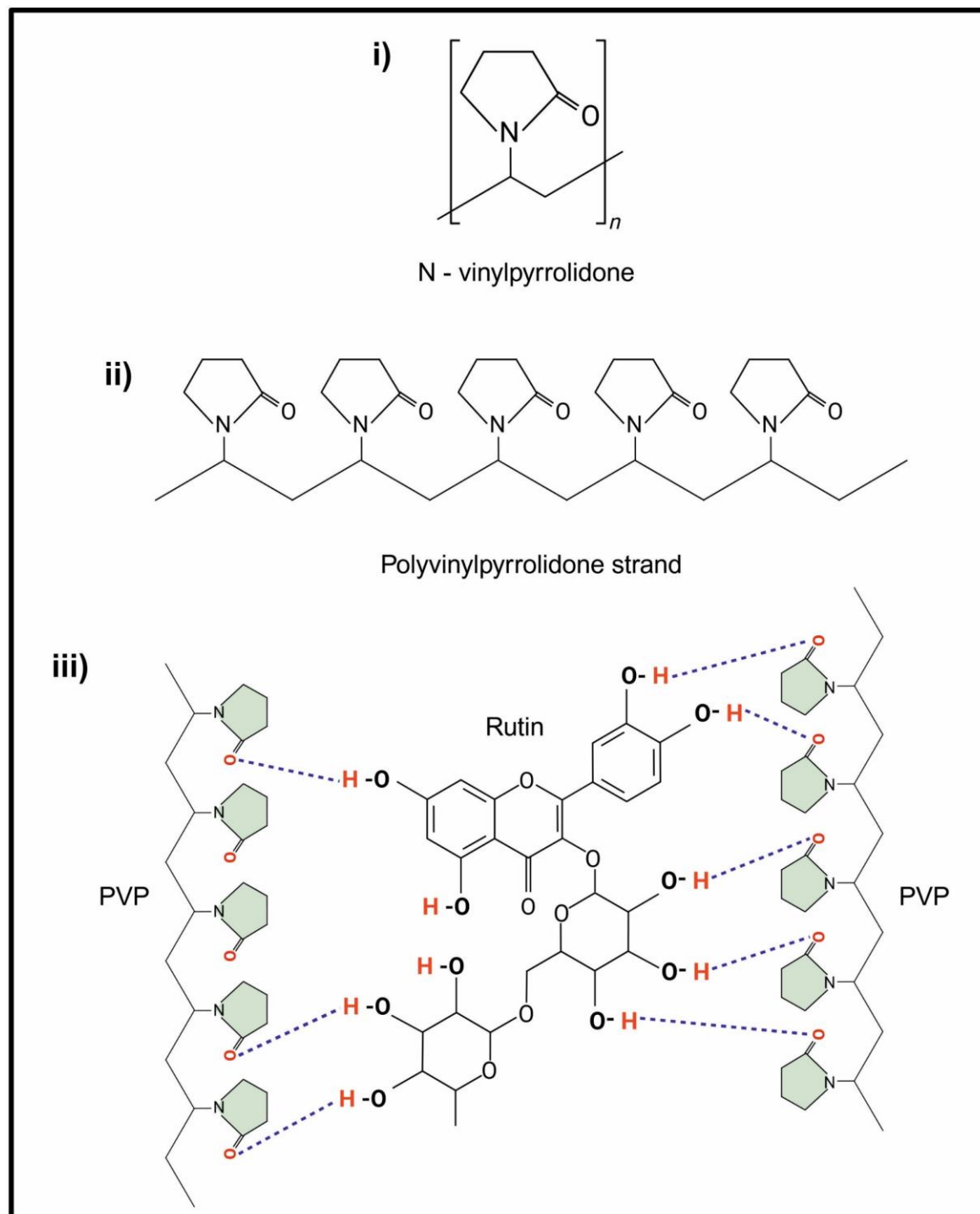


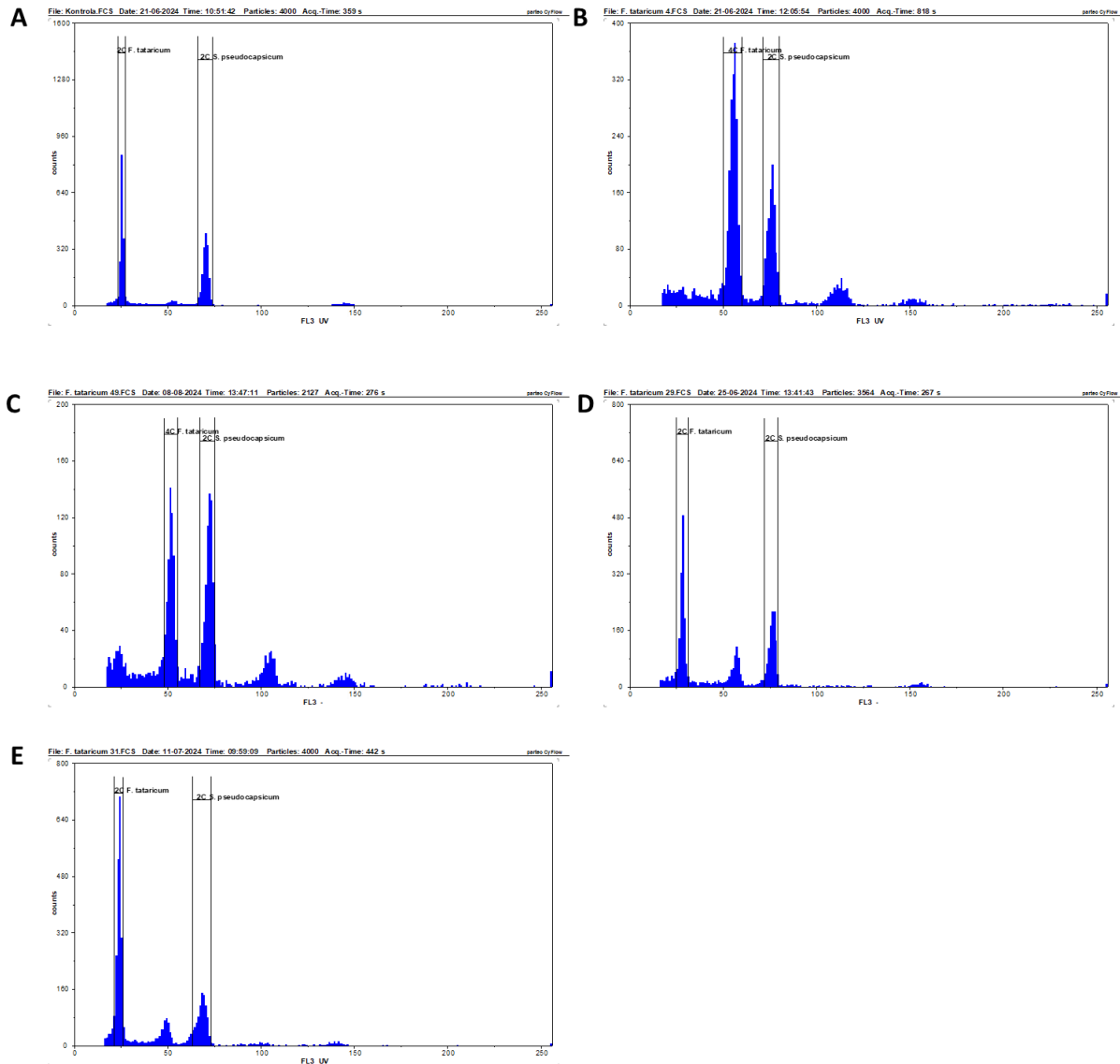
Supplementary Figure S1. Schematic representation of the Phenylpropanoid Pathway and the inhibition of the Phenylalanine ammonia-lyase (PAL) enzyme by AIP.



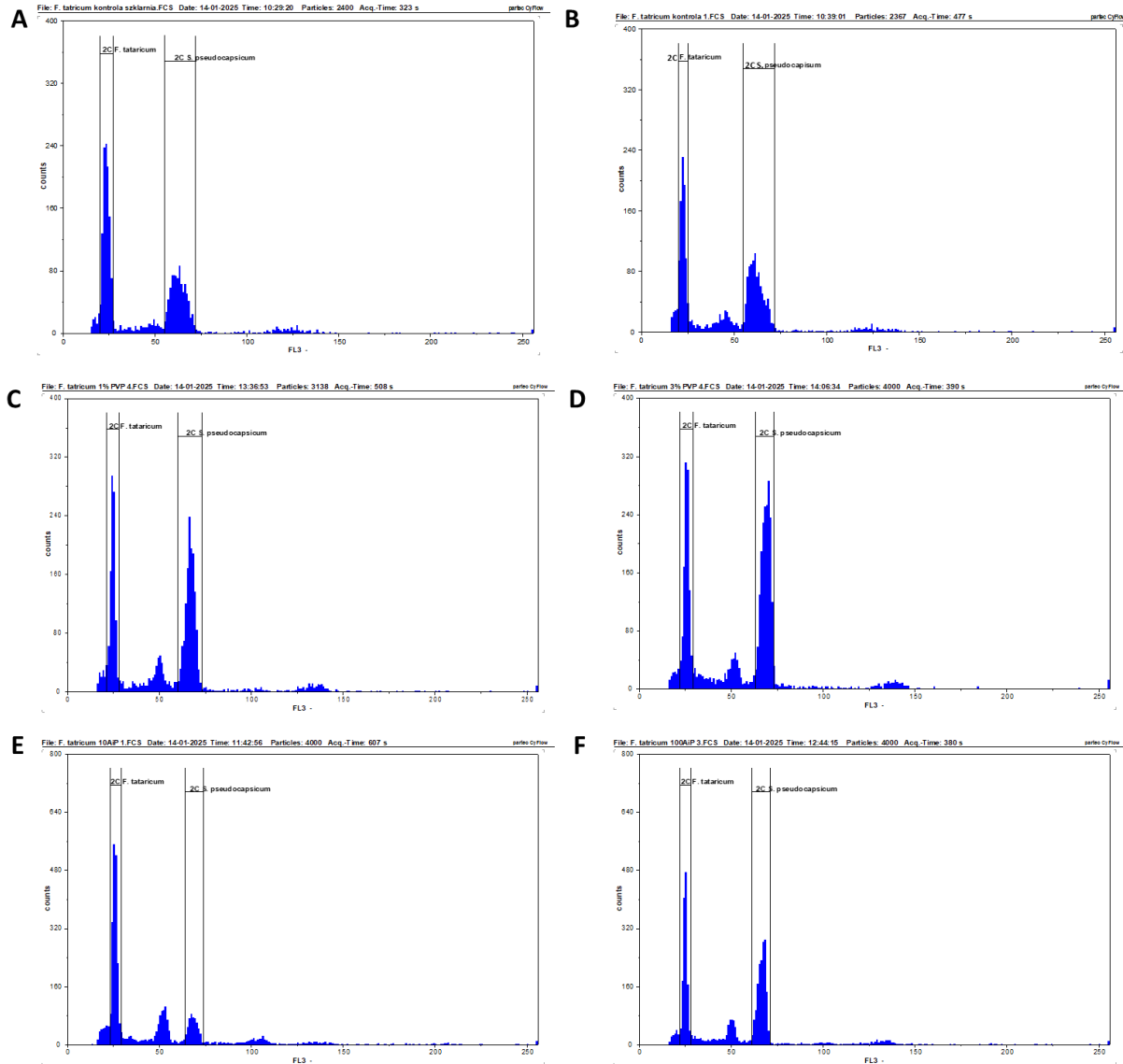
Supplementary Figure S2. Schematic representation of the action mechanism of PVP. (i) monomeric unit of PVP, (ii) PVP strand and (iii) example of adsorption of rutin by PVP strands through hydrogen bonds.



Supplementary Figure S3. Flow cytometer histograms presenting the relative DNA content in the leaves of plant-derived from protoplast cultures of *F. tataricum*. Control plants (A), plants derived from protoplast cultivated on culture medium variant with 0.2 mM AOPP (B), 10 μ M OBHA (C), 10 μ M AIP (D), 1% PVP (E).



Supplementary Figure S4. Flow cytometer histogram showing relative DNA content in leaves of PECCs-derived plants of *F. tataricum*. The control plants grown from seeds (A), PECCs-derived plants cultivated on rooting medium (B) and rooting medium supplemented with 1% PVP (C), 3% PVP (D), 10 μ M AIP (E), and 100 μ M AIP (F).



Supplementary Figure S5. Cluster map of HPLC profiling of polyphenolics, including rutin, catechin, and epicatechin, along with trans-cinnamic acid. *AIP* – 2-aminoindan-2-phosphonic acid; *PVP* – polyvinyl pyrrolidone.

