



農学部 応用生物化学科

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Derivation of fine chemicals from plant polymer ～植物天然高分子からのファインケミカルの創製～

【Keywords】

Lignin

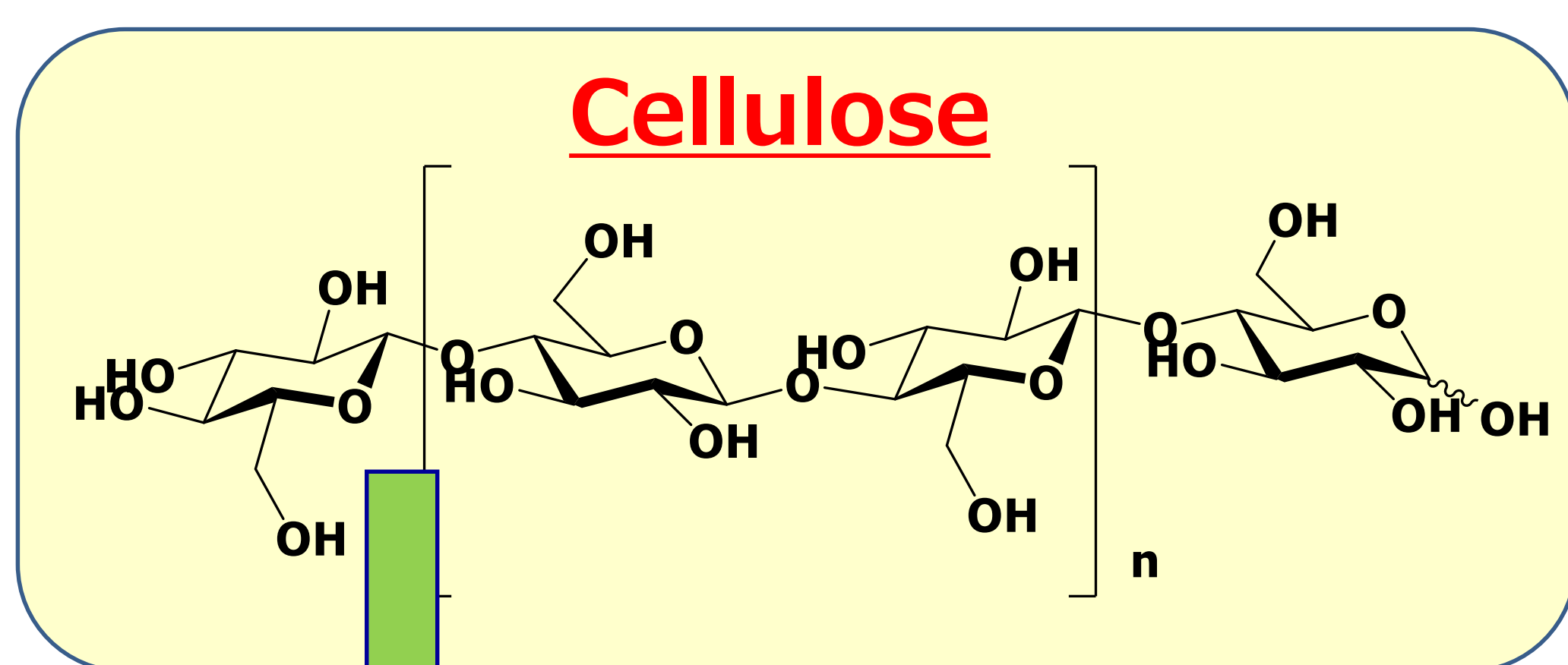
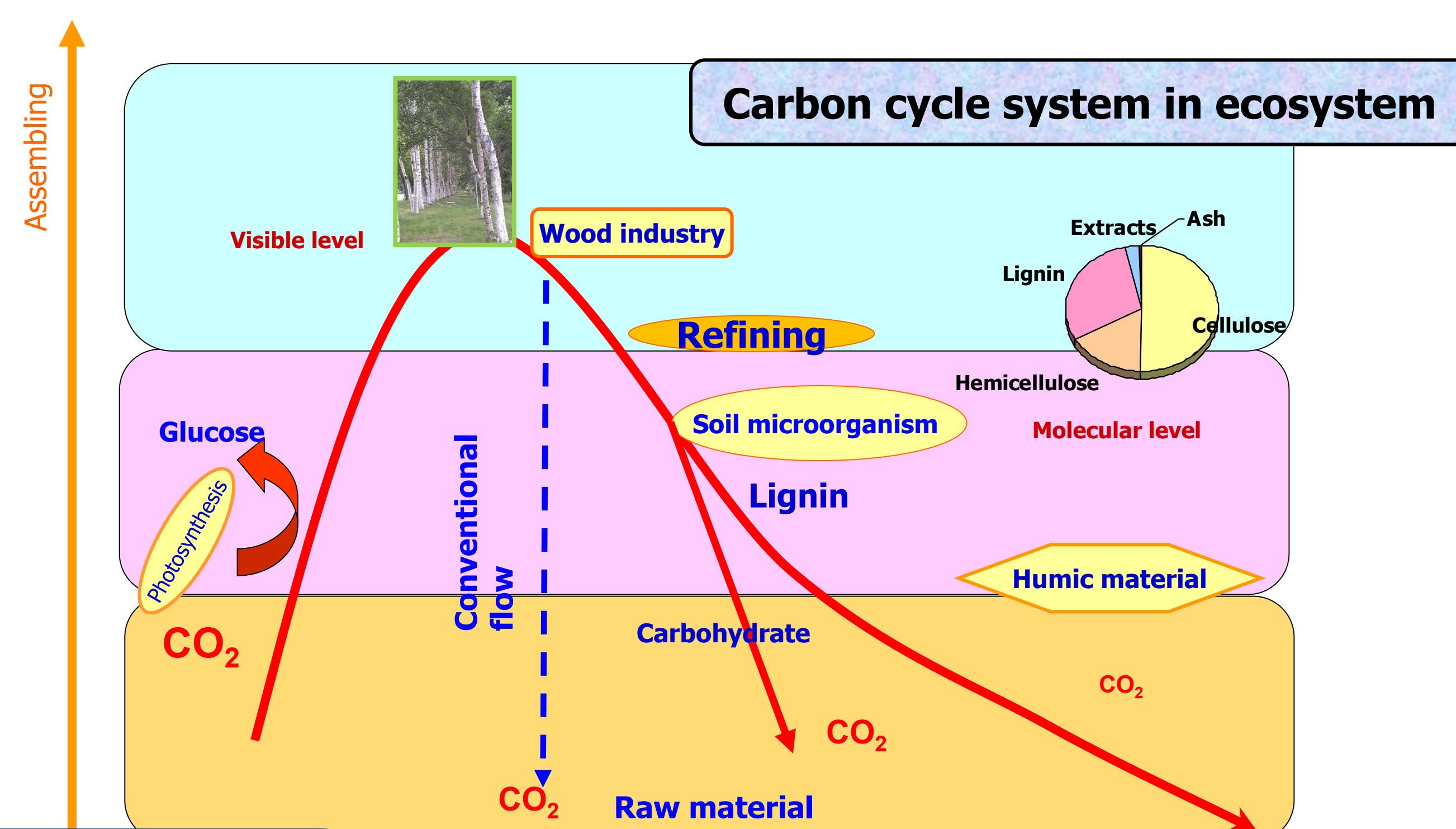
Plant polyphenol

Oxidative degradation

UV absorber

physiological active

Plant main component "Lignin", heterogeneous aromatic polymer is attractive as a source for aromatic chemicals but its recalcitrant and heterogeneous structure makes the conversion very difficult. However lignin was degraded slowly by phenol oxidase from white rot fungi etc, and converted to humic substance in the soil. Lignin humic substance serve as adsorber for metal ion and protein. We study application of lignin by mimic of Lignin humic substance characteristic.



Glucose

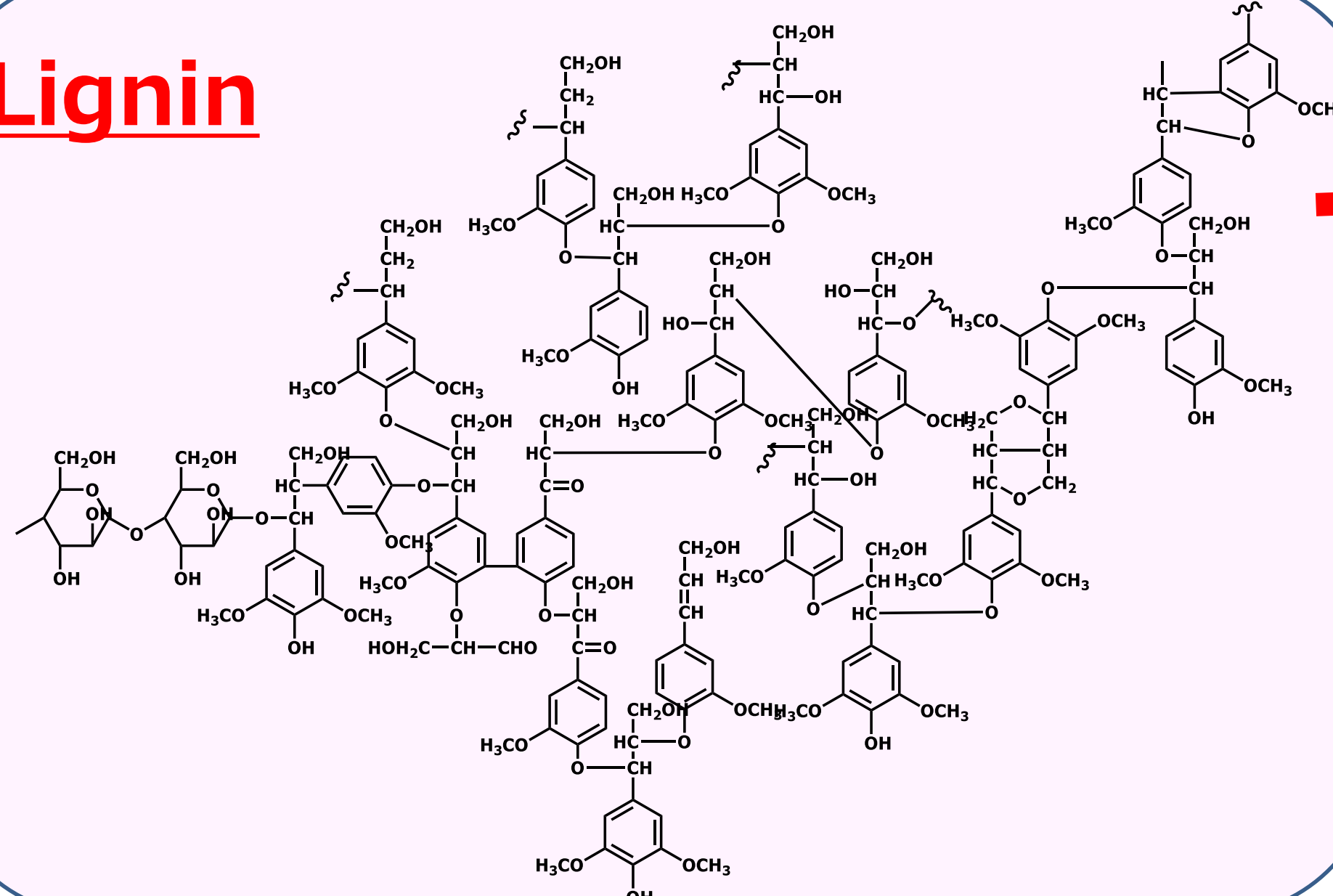
Saccharization

Bioalcohol

Lactic acid

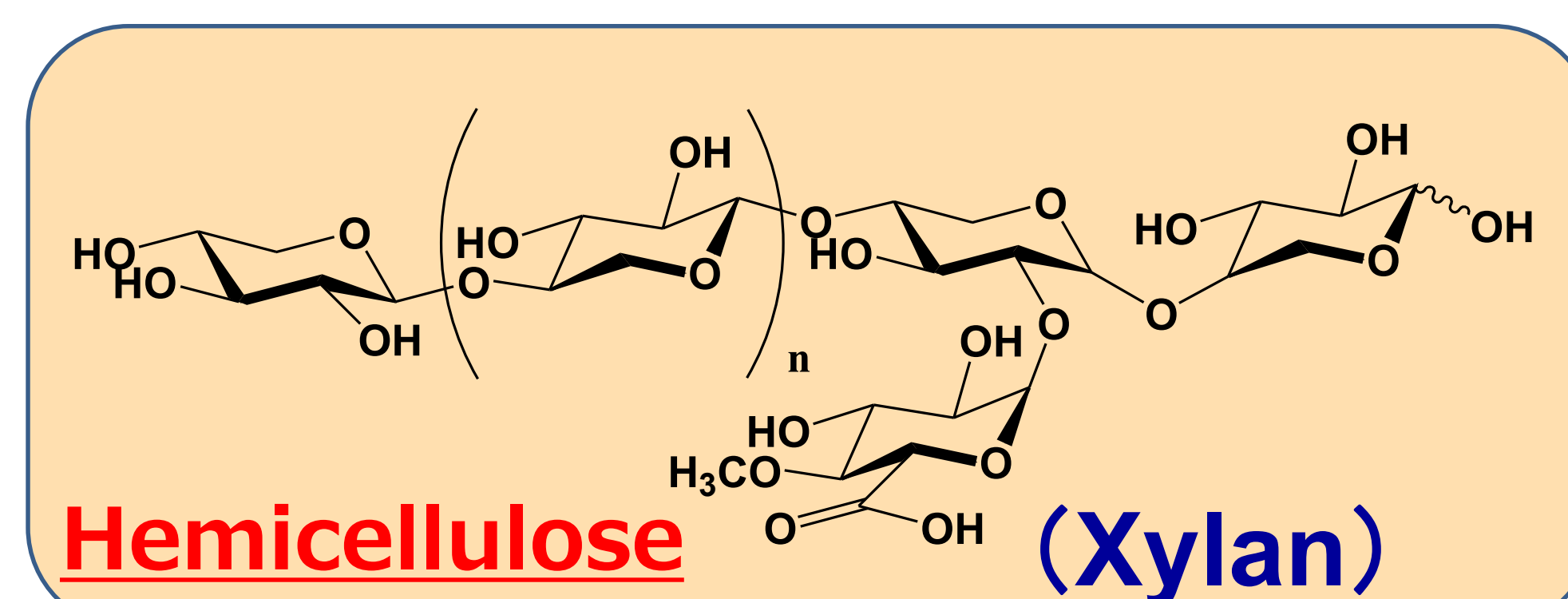
Bioplastic

Lignin



irregular structure
persistent

unused
resources

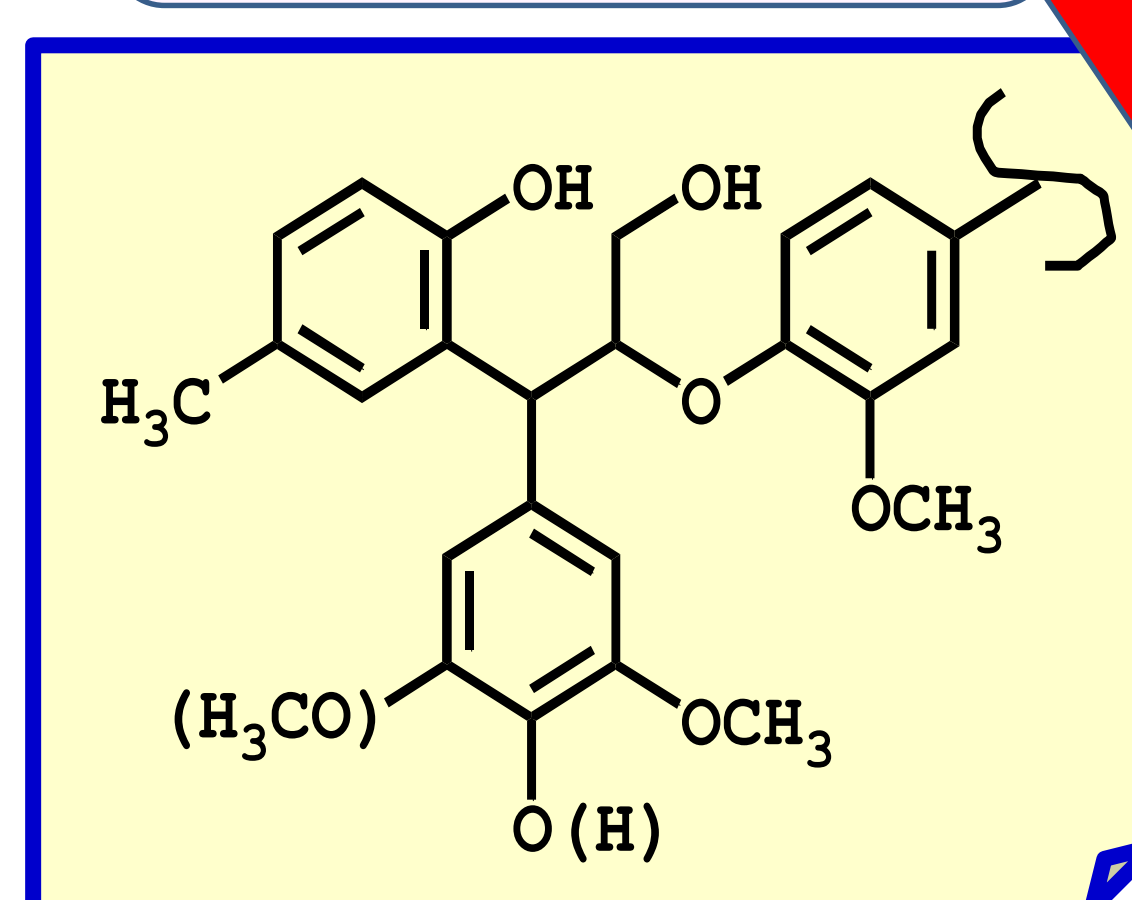


Hudrolysis
Reduction

Xylitol

**Phase separation
system**

Lignophnol
(LP)



**Oxidative
degradation
(Bio and chemical)**

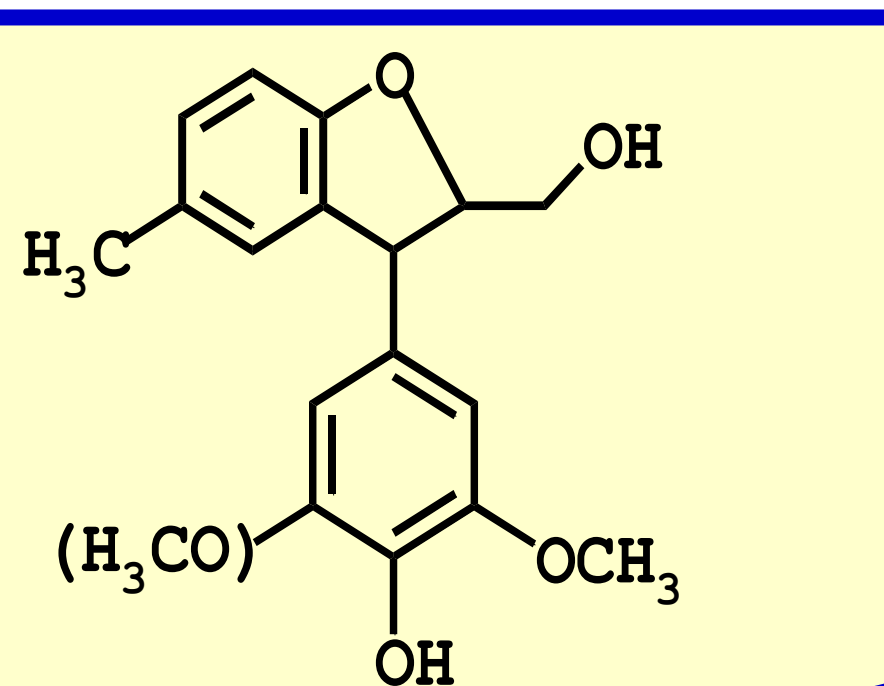
Alkaline treatment

Cellulose nanofiber

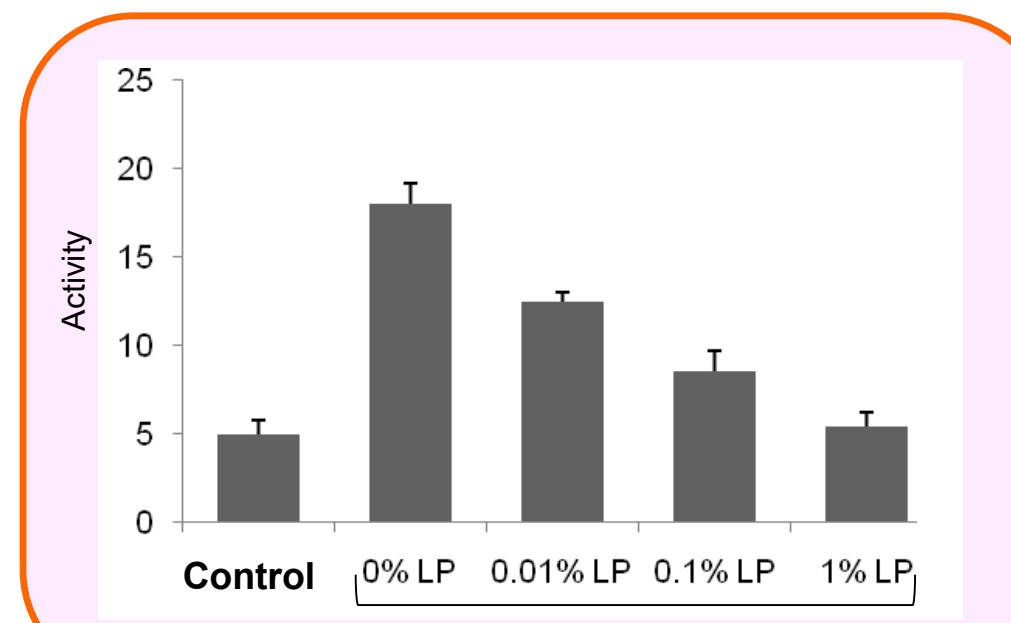
LP Plant 10kg/day

LP car body

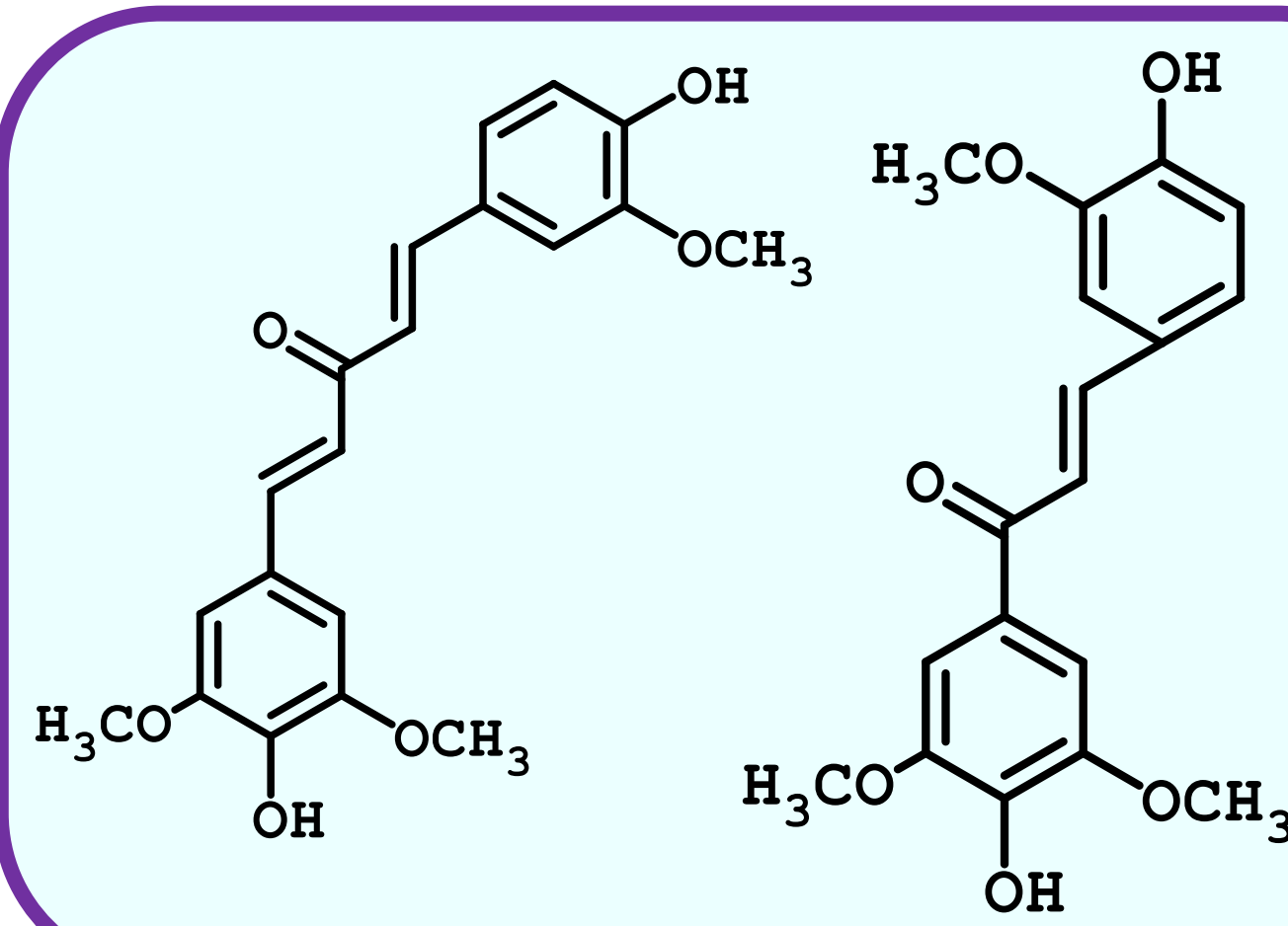
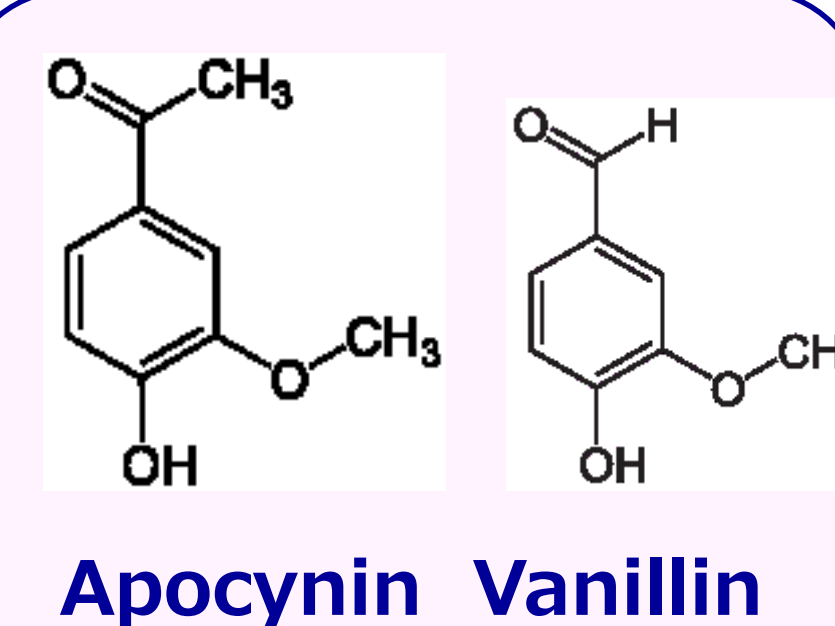
Car body
Airframe
etc.



30% of lignin



Inhibition of lipogenic enzyme
by LP



UV absorber
Antioxidant etc.

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