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Tyrosine Phosphorylation and Activation of Mitogen-Activated Protein Kinases by Thrombin in Human Platelets: Possible Involvement in Late Arachidonic Acid Release.

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Thrombin induced tyrosine phosphorylation of 41-kDa and 43-kDa mitogen-activated protein (MAP) kinases in human platelets which was detectable at 1 min and peaked at 2 min after thrombin stimulation as assessed by immunoblotting. The kinase activity increased concurrently with tyrosine phosphorylation. The present results indicate that thrombin activates MAP kinases which may not be involved in aggregation and secretory responses but may play a role in the late arachidonic acid release via activation of cytoplasmic phospholipase A_2 in human platelets.

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Crystal and Molecular Structures of Allocinnamic Acid.

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Crystals of allocinnamic acid having a melting point of 68℃ are monoclinic: space group $P2_1/n$ with a=10.157(4), b=9.798(2), c=15.770(4) Å, β= 91.35(3)°, and Z=8. The structure was solved by direct methods and refined to a final R value of 0.059 for 3832 reflections [$I>3\sigma(I)$]. There are two independent molecules in the asymmetric unit. The two molecules are hydrogen bonded through carboxylic acid groups [O1A···O2B, 2.643(5) Å; O2A···O1B, 2.629(5) Å]. Geometric differences between the two molecules are found in the torsion angle around the C(phenyl)-C(olefin) bond and the olefinic C=C bond length. In the high-resolution solid-state ^{13}C NMR spectra the resonances for the C2, C3, and C4 carbons are observed as doublet features in accordance with the results of the X-ray crystal analysis.

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Crystal and Molecular Structures of a Low-Melting Polymorph of Allocinnamic Acid.

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Crystals of a polymorph of allocinnamic acid having a melting point of 58℃ are monoclinic: space group $P2_1/c$ with a=6.2508(8), b=15.524(2), c=8.5067(5) Å, β=109.295(7)°, and Z=4. The structure was solved by direct methods and refined to a final R value of 0.042 for 1321 reflections [$I>3\sigma(I)$]. The molecules form centrosymmetric dimers with two O-H···O bonds of carboxylic acid groups [O···O distance, 2.666(1) Å; O···H-O angle, 160.79°]. The plane formed by the olefin group is twisted with respect to the phenyl ring at an angle of 37.8(2)°. In the high-resolution solid-state ^{13}C NMR spectra the C2, C3, and C4 signals are observed as singlets in contrast to those for the acid having a melting point of 68℃.