

**Title** Inhibition of aldehyde dehydrogenase enzyme by durian (*Durio zibethinus* Murray) fruit extract

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### **Abstract**

The scientific basis of the adverse, or at times lethal, effect of ingesting durian (*Durio zibethinus* Murray) while imbibing alcohol has not been established. Symptoms are reminiscent of the disulfiram–ethanol reaction (DER) arising from the inhibition of aldehyde dehydrogenase (ALDH). Cognizant of the inhibitory effect of sulphur compounds like disulfiram on ALDH and the rich sulphur content of durian, the influence of durian fruit extract on the ALDH-mediated oxidative metabolism of acetaldehyde was investigated. We report a dose-dependent inhibition of yeast ALDH (yALDH), at most 70% at 0.33 ppm (mg extract/l assay mix), by dichloromethane:pentane extracts. Sulphur-rich TLC fruit extract fractions that eluted farthest from the origin effected the greatest inhibitory action. yALDH assay using diethyl disulfide as internal standard further supports the role of durian’s sulfury constituents in the fruit’s ALDH-inhibiting property. Insight into the etiology of DER-like symptoms felt upon simultaneous durian and alcohol consumption is hereby presented.