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FILE: ▪Prickly Pear Cactus (*Opuntus ficus indica*)
▪Inflammation
▪Hangover Remedy

HC 090447-272

Date: January 14, 2005

RE: Prickly Pear Cactus Extract May Reduce Symptoms of Hangover

Wiese J, McPherson S, Odden MC, Shlipak MG. Effect of *Opuntia ficus indica* on symptoms of the alcohol hangover. *Arch Intern Med.* June 28, 2004;164(12):1334-1340.

Alcohol hangovers are associated with increased inflammation in the body. The increased inflammatory state is believed to result from the byproducts of alcohol metabolism in the body and from impurities in alcoholic beverages. Previous studies have shown that fruit extracts from the prickly pear cactus (*Opuntia ficus indica*) may decrease injury caused by inflammation and oxidative stress and may stimulate the synthesis of heat shock proteins in the cell. Heat shock proteins are produced in response to physical stress and help repair damage in the cell. The purpose of this study was to evaluate the effect of *Opuntia ficus indica* (OFI) on alcohol hangovers and inflammatory status of the body following alcohol consumption.

This study was a double-blind, placebo-controlled, crossover trial conducted at Tulane Medical School and School of Public Health in New Orleans, Louisiana. The subjects were healthy, nonsmoking men and women aged 21 to 35 years. The subjects arrived at the study facility in the afternoon, and they were randomly assigned to receive capsules containing 1600 IU of OFI (Tex-OE™, Extracts Plus Inc., San Diego, California; Development of International Units for prickly pear is new.) or placebo capsules. They underwent baseline blood and urine testing, ate a standard cheeseburger meal at dinner, consumed 5-10 alcoholic beverages over the next 4 hours, and had their blood alcohol level measured at 1 am. The subjects were driven home to sleep and returned to the study facility the next morning for blood and urine testing and to assess their hangover symptoms. This protocol was repeated 2 weeks later. Subjects who initially received OFI were given placebo, and subjects who initially received placebo were given OFI.

Sixty-four subjects enrolled in the study, and 55 subjects completed both study visits. Three of 9 hangover symptoms (nausea, dry mouth, and anorexia) were significantly reduced ($P<0.05$) in subjects taking OFI compared to subjects taking placebo. Overall

well-being was rated better by subjects taking OFI than by subjects taking placebo (P=0.04). The risk of having a severe hangover was twice as likely with placebo compared to OFI (P=0.02). Blood levels of C-reactive protein (CRP), a protein that gives a general indication of inflammation, increased by 50% in subjects taking the placebo (P<0.001) but did not change significantly in subjects taking OFI. Increased levels of CRP were highly correlated with severity of hangover symptoms.

The authors conclude that the severity of hangover symptoms in healthy young people was moderately reduced by this OFI extract. Based on the increased blood levels of CRP and cortisol (a steroid hormone that rises with physical or emotional stress), the authors suggest that more than half of the effects of OFI were due to reduction in inflammation. Although the authors hypothesize that reduction in hangover symptoms could be due to enhanced production of heat shock proteins, this study included no measurement of heat shock proteins, and no conclusions can be drawn about the effect of OFI on these cellular proteins. While the study does not mention whether Tex OE is derived from the non-pigmented *O. ficus indica* fruits which are low in antioxidants or the dark purple fruits which contain more antioxidants, the company's website only mentions the dark purple fruit.

—Heather S. Oliff, Ph.D.

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