

PHENOLIC COMPOSITION AND *IN-VITRO* ANTIOXIDANT  
ACTIVITY OF PRUNES AND PRUNE JUICE

BY

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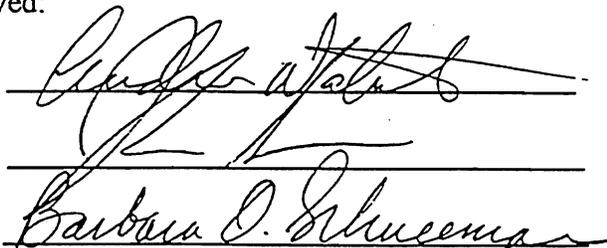
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## 1. ABSTRACT

Phenolic compounds are important components in many foods and phenolic compositional data can be used to determine the authenticity of fruit juices. Also, many phenolics are powerful antioxidants and their consumption has been associated with the reduced incidence of coronary heart disease (CHD). In this study, a large, representative sample of Californian pitted prunes, extra large prunes with pits and prune juice from *Prunus domestica* variety La Petite Prune d'Agen was analyzed for phenolics during one production year. Phenolics were extracted, separated and identified using reverse phase HPLC with UV-visible spectral detection. Hydroxycinnamic acids, especially neochlorogenic acid, were the predominant phenolics in all samples. Flavonols, including rutin, were also found. The samples did not contain detectable amounts of anthocyanins or flavan-3-ols. The mean concentration of phenolic compounds was  $1840 \pm 389$  mg/kg prune in pitted prunes,  $1397 \pm 191$  mg/kg edible fruit ( i.e. not including pit) in the extra large prunes with pits, and  $441 \pm 48$  mg/L in prune juice ( $p < 0.05$ ). The prune extracts, as well as many of the pure phenolic compounds contained in prunes, had the ability to inhibit the  $\text{Cu}^{+2}$  catalyzed oxidation of human low-density lipoprotein (LDL). The extent of inhibition of LDL oxidation was indicated by the hexanal concentration as measured by static headspace gas chromatography (SHGC). The prune extract inhibited LDL oxidation by 24% at 5  $\mu\text{M}$  gallic acid equivalents (GAE), 82 % at 10  $\mu\text{M}$  GAE and 98% at 20  $\mu\text{M}$  GAE. Prune juice extract inhibited LDL oxidation by 3 % at 5  $\mu\text{M}$  GAE, 62 % at 10  $\mu\text{M}$  GAE and 97% at 20  $\mu\text{M}$  GAE. This data indicates that prunes and prune juice could be a source of dietary antioxidants.

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