

(Dreosti 1996; Kuroda and Hara 1999; Wang et al. 2000). Likewise, the proposed protection against CVD had also rested heavily on cellular and animal experiments, conducted at conditions and/or concentrations implausible to occur in humans.

A study of green tea consumers from Japan (Kono et al. 1992) and another group in Norway (probably mainly black tea drinkers) (Stensvold et al. 1992) showed a significant inverse association between tea drinking and plasma cholesterol levels. A similar but not statistically significant trend was observed in presumably black tea drinkers from Israel (Green and Harari 1992). In addition, proof for a protective effect of tea against CVD – the lowering of blood pressure and a trend towards decreased coronary heart disease mortality – was observed in the Norwegian study. These protective effects were also observed in a study of a population of elderly men in the Netherlands, although the association was seen with above-average intake of dietary flavonoids such as quercetin, kaempferol, myricetin, apigenin and luteolin, which were largely derived from tea.

2.3.9 GRAPES AND WINE

Grapes, and wine derived from grapes, contain large amounts of phenolic compounds, including flavonoids like catechins, epicatechin, quercetin and anthocyanidins; phenolic acids (hydroxycinnamates); and tannins (Kaur and Kapoor 2001). The phenolic compounds in wine primarily originate from grapes, but the phenolic profile of wine is not the same as that present in fresh grapes or grape juice which is due to the significant changes that take place during wine making.

In certain regions of France, coronary heart disease mortality is low despite diets high in dairy fat (Renaud and de Lorgeril 1992). This phenomenon, was referred to as the ‘French Paradox’ is attributed to a high intake of red wine and has been partly explained by the association of moderate alcohol consumption with a decreased risk of CVD. More recent examinations have targeted the nonalcoholic components, particularly flavonoids and other phenolics; the phenolic content of red wine is 20 to 50 times greater than that of white wine. Red wine was shown to inhibit oxidation of human LDL *in vitro* (Frankel et al. 1993; Teissedre et al. 1996), this property being attributed to wine phenolics. Collectively, as reviewed by Rotondo and Gaetano (2000) and Wollin and Jones (2001), phenolic compounds appear to have anti-thrombotic effects as a result of the altered susceptibility of platelet aggregation, reduced synthesis of prothrombotic and proinflammatory intermediates and reduced expression of adhesion molecules and tissue factor activity. The inhibition of platelet-mediated thrombosis was reported with grape juice consumption (Freedman et al. 2001).

Aside from its antioxidant activity, resveratrol, found in grape skin and red wines, persuades the quinone reductase, a phase II detoxifying enzyme. It possesses anti-inflammatory activity and also hinders the hydroperoxidase activity of cyclooxygenase enzymes, thereby inhibiting the arachidonic pathway that produces prostaglandins that encourage tumor cell growth (Cassidy et al. 2000). In a dose-dependent manner, resveratrol inhibits the growth of preneoplastic lesions, thereby slowing down the progression of carcinogenesis (Jang et al. 1997). Other reports propose that resveratrol hinders key enzymes involved in DNA duplication and synthesis (Fontecave et al. 1998; Sun et al. 1998). As stated by Della Ragione et al.