Abishek B Santhakumar, J Blood Disord Transfus 2015, 6:5
http://dx.doi.org/10.4172/2155-9864.C1.010

OMICS International
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3rd International Conference on
Hematology & Blood Disorders
November 02-04, 2015 Atlanta, USA

# Role of antioxidants and polyphenols in thrombosis and haemostatic function

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Platelet hyperactivity and oxidative stress play a central role in the pathogenesis of many disorders including cardiovascular disease, thrombosis and type-2 diabetes. Natural antioxidants and polyphenols are believed to exhibit cardio-protective properties via their free radical scavenging activity. In this research, the anti-thrombotic potential of taurine, caffeine, anthocyanin polyphenol and its active metabolite hippuric acid was evaluated. It was found that taurine and caffeine, *in vitro*, synergistically lowered platelet aggregation and prolonged time taken for clot formation. Dietary supplementation with a novel variety of Queen Garnet plum juice (QGPJ), rich in anthocyanins, for 4 weeks reduced platelet hyperactivity/aggregation, reduced biomarkers of oxidative stress and favorably altered coagulation parameters in normal healthy individuals. This antithrombotic activity of QGPJ was greater under an exercise-induced model of oxidative stress in healthy individuals. Hippuric acid, *in vitro*, also demonstrated reduction of platelet hyper activation. Supplementation with QGPJ did not alter thrombosis specific gene expression. The results demonstrate the potential of natural antioxidants in reducing platelet hyper activation related thrombogenesis in both normal and prothrombotic conditions. Further mechanistic studies are warranted to unveil the potential of such natural compounds in complementary anti-platelet therapy.

## Biography

Abishek B Santhakumar has obtained his Masters in Laboratory Medicine at RMIT University, Australia in 2010. Linking up isolated facts into comprehensive understandings to discover something is what science is described as and this cognitive process fascinated him to pursue a PhD in Hematology at Griffith University, Australia (2011-2014). His research interest is to get cogent evidence on how natural dietary antioxidants may help alleviate the risk of thrombosis and its potential as anti-platelet therapy. He has published a number of peer-reviewed journal articles, reviews and successful in research grants. He is currently an Academic/Researcher at CQ University, Australia.

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