

Goker H, Haznedaroglu IC, Ercetin S, *et al*: Haemostatic actions of the folkloric medicinal plant extract Ankaferd Blood Stopper®. *J Int Med Res* 2008; 36: 163 – 170.

Dear Sir

I read the great, pioneering article entitled 'Haemostatic actions of the folkloric medicinal plant extract Ankaferd Blood Stopper®', authored by Goker *et al.*¹ with great interest. In the study, the authors investigated, *in vitro*, the effects on haemostatic parameters of the substance termed Ankaferd Blood Stopper®, which is composed of extracts of the plants *Thymus vulgaris*, *Glycyrrhiza glabra*, *Vitis vinifera*, *Alpinia officinarum* and *Urtica dioica*.¹ In conclusion they stated that Ankaferd Blood Stopper® stopped bleeding via erythrocyte aggregation, but did not remark on which possible factor within the mixture could lead to this aggregation.¹ Thus, as a biochemist, I should like to present the following comments to put the study, as well as future studies on Ankaferd Blood Stopper®, in a new perspective.

Plant proteins that bind to the cell surface and cause agglutination are known as lectins. Some of these plant proteins, discovered many years ago, are phytohaemagglutinins because they bind to red blood cells and agglutinate them.² In the realm of plants, phytohaemagglutinins and substances causing agglutination are most commonly found in the Leguminosae family.² For example, concanavalin A obtained from the jack bean (*Canavalia ensiformis*)² and ricin obtained from the castor bean (*Ricinus communis*)³ were among the first discovered phytohaemagglutinins. Due to this feature, they are used in clinical practice to distinguish blood types (A, B and O). Likewise, it is known that an integral protein, glycophorin, that contains oligosaccharides is found in the

membranes of red blood cells. Lectin from the lima bean (*Phaseolus lunatus*) binds to *N*-acetyl-D-galactosamine units and agglutinates only red blood cells of the A type, lotus bean (*Nelumbo nucifera*) agglutinates only blood cells of the B type, and another plant lectin binds to fructose sugar on glycoproteins to agglutinate red blood cells of only type O.⁴

In the light of this information, the stopping of bleeding through erythrocyte aggregation might have resulted from phytohaemagglutinins and lectins present in the mixture as lectins are found on surfaces of plant cells, including the ones used in the mixture of Ankaferd Blood Stopper®. While it may be possible to prepare Ankaferd Blood Stopper® in consideration of which blood type causes better aggregation with which lectin so as to obtain more effective results, the first thing to be done right now seems to be to determine whether phytohaemagglutinin and lectin are present in Ankaferd Blood Stopper® and, if so, at what levels.

Conflicts of interest

The author had no conflicts of interest to declare in relation to this article.

SULEYMAN AYDIN (Assistant Professor) – Department of Medical Biochemistry and Clinical Biochemistry (Firat Hormones Research group), Firat University Medical School (Firat University Hospital), 23119 Elazig, Turkey (E-mail: saydin1@hotmail.com; Tel: +90 533 493 4643).

Received 6 January 2009

Copyright © 2009 Field House Publishing LLP

References

- 1 Goker H, Haznedaroglu IC, Ercetin S, *et al*: Haemostatic actions of the folkloric medicinal plant extract Ankaferd Blood Stopper®. *J Int Med Res* 2008; 36: 163 – 170.
- 2 Sharon N: Lectins: past, present and future. *Biochem Soc Trans* 2008; 36: 1457 – 1460.
- 3 Chakravartula SV, Guttarla N: Biochemical properties of ricin in immature castor seed. *Nat Prod Res* 2008; 22: 600 – 606.
- 4 Pandolfino ER, Namen AE, Munske GR, *et al*: A comparison of the cell-binding characteristics of the mitogenic and nonmitogenic lectins from lima beans. *J Biol Chem* 1983; 258: 9203 – 9207.