Reviewer's report

**Title:** Study on the antiviral activity of San Huang Yi Gan Capsule against hepatitis B virus with seropharmacological method

**Version:** 1  **Date:** 5 February 2013

**Reviewer:** Virendra Pandey

**Reviewer's report:**

The authors have carried out seropharmacology on a Chinese herbal medicine, San Huang Yi Gan Capsule (SHYGC) which has mixture of 6 herbs including Radix scutellariae, Rheum palmatum L., Radix bupleuri, Radix astragali, Fructus schizandrae and Radix glycyrrhizae. It is not clear how the mixture was prepared and if there is any other component in it. It is also not clear whether the mixture contained water soluble extracts of these herbs and also their ratio in the mixture. The steady state concentration of the drug in the serum is based on assumption which authors have clearly stated as it is not possible to determine the drug concentration in the serum. Serum withdrawn 2 hr post administration of the last dose was arbitrarily considered to contain highest concentration of the drug. Nevertheless, this study is significant and provides a new basis for testing efficacy of drug in near in vivo setting. The methods are appropriate. Discussion should be shortened.

This manuscript needs professional editing before publication. There are some issues which should be addressed.

On page 6: The San Huang Yi Gan Capsule (SHYGC) was dissolved at 500 mg/ml. The capsule containing 1.67g of medicinal plants. What is the nature of the plant materials, are they water soluble extract or mixture of whole plant powder? How can it be dissolved in water if it is powder mix? Was it suspended in water or dissolved in water?

“Entecavir (ETV), derived from Bristol-Myers Squibb Corporate (New York, NY), was dissolved in dimethyl sulfoxide at 10µM and prepared in cell culture medium prior to the following tests”

This sentence does not make sense. Was it dissolved in 100% DMSO? Or in cell culture medium? Or 10% DMSO containing cell culture medium? Prior to following tests need to be changed as “prior to experimental test”

Page 7: “Rabbits of low, medium and high dose SHYGC groups orally received SHYGC in doses of 0.25g/kg, 0.5g/kg and 1.0g/kg daily, with rabbits of vehicle group administered the volume-matched ddH2O”. This sentence needed restructuring. Why placebo group control rabbit were fed matched volume ddH2O? H2O should be fed adlib.
Does H2O contained DMSO also?

What is P/N ratio? P and N should be defined.

Figure 1A: “Rabbit inactivated serum” should be stated as ‘inactivated rabbit serum’.

Fig 1C: is not required. Why should there be any difference in blood serum withdrawn from ear artery or transcardial puncture?

Fig 3. The authors have examined endogenous HBV DNA polymerase activity in serum treated medium supernatant. What is the direct effect of drug (if water soluble) on the polymerase activity in vitro?

Page 13, second line from bottom: what is “prosperous strategy”? May be authors mean ‘proper strategy’.

Page 14 line 4 from bottom: “direction action” or direct action?

The scientific name of plants should be in italics with first letter of Genus in capital letter.

Radix scutellariae, Rheum palmatum L., Radix bupleuri, Radix astragali, Fructus schizandraceae and Radix glycyrrhizae

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'