Reviewer's report

**Title:** Histone deacetylase (HDAC) inhibitory and Antiproliferative activities of phenolic-rich extracts derived from the rhizome of Hydnophytum formicarum Jack.: Sinapinic acid acts as HDAC inhibitor

**Version:** 2  **Date:** 15 June 2013

**Reviewer:** Chanin Nantasenamat

**Reviewer's report:**

The authors report an interesting finding on the Thai traditional medicinal plant from the rhizome of H. formicarum Jack and its histone deacetylase inhibitory properties against human cancer cell lines.

- Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Authors should compare the chemical structures of cinnamic acid and sinapinic acid in their manuscript and discuss this in light of the two methoxyl groups at C1 and C3 positions.

Page 13, Lines 23-24, Discussion: Sodium butyrate and sinapinic acid was compared in terms of water soluble property. Authors should also include information on the LogP. For example, the LogP of sinapinic acid is 1.52 while sodium butyrate has 0.92 indicating that the former is more lipophilic than the latter. This physicochemical details support the author’s statement that sinapinic acid has difficulty of water solubility than sodium butyrate.

- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

None

1. Is the question posed by the authors well defined?

2. Are the methods appropriate and well described?

   Yes.

3. Are the data sound?

   Yes.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
5. Are the discussion and conclusions well balanced and adequately supported by the data?

6. Are limitations of the work clearly stated?

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

The authors should include in the manuscript the pharmacophore giving rise to HDAC inhibitory activity. The following sentence was obtained from a recent article by Wu et al. The authors can paraphrase the following sentence in their article.

“HDACi can be categorized into four subtypes based on their chemical structures: (1) short chain fatty acid; (2) hydroxamic acid; (3) benamides; and (4) cyclic peptides.”


8. Do the title and abstract accurately convey what has been found?
Yes

9. Is the writing acceptable?

There are some grammatical errors present in the manuscript. The authors should have their manuscripts thoroughly proofread by a Native English language speaker. Examples of such grammatical errors are below.

Page 13, Lines 19-21, Discussion:

“While many poor patients in these countries struggle to save their life with the traditional use of medicinal plants, most of the plant active ingredients remain to be investigated.” Should be changed to: “While many poor patients in these countries still struggle to save their lives with the use of traditional medicinal plants where most of the plant’s active ingredients remains to be investigated.”

Page 13, Lines 21-22, Discussion:

“To our knowledge, this is the first time that sinapinic acid, a derivative of cinnamic acids, is identified as HDAC inhibitor.” Should be changed to: “To our knowledge, this is the first time that sinapinic acid, a derivative of cinnamic acids, is identified as an HDAC inhibitor.”

Page 14, Line 1, Discussion:

“it has been reported that other two members” Should be changed to: “it has been reported that two other members”
Page 14, Line 4, Discussion:
“investigation on a role” Should be changed to: “investigation on the role”

Page 15, Line 12, Discussion:
“for cancer treatment in an alternative medicine” Should be changed to: “as an alternative medicine for cancer treatment”

Page 16, Line 16, Conclusions:
“in vitro” should be changed to italic form.

Page 16, Line 21-22, Conclusions:
“for cancer treatment in an alternative medicine” Should be changed to: “as an alternative medicine for cancer treatment”

Level of interest: An article whose findings are important to those with closely related research interests

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.