



Mr. James E. Clark, President  
South Carolina State University  
300 College Street, NE  
Campus P.O. Box 7008  
Orangeburg, SC 29117

March 27, 2017

Dear Mr. Clark:

At a time when individuals are increasingly sensitive to the value of truth and the importance of finding the facts to back up a headline, I am writing to urge you to remove a press release from 2009 that misinterprets an unsubstantiated piece of research that has remained on the University website for years. The press release claims that emissions from burning paraffin candles are hazardous to human health. As the press release (2009) predates your appointment, I have included a printed version of the press release, found online here: [http://www.scsu.edu/news\\_article.aspx?news\\_id=832](http://www.scsu.edu/news_article.aspx?news_id=832).

I fully disclose that I am a science consultant for the National Candle Association representing U.S. manufacturers of candles, including paraffin and non-paraffin products. I specialize in environmental safety and health matters. While the concerns of my client may be top of mind, I am first and foremost, a scientist, and as such, I seek the evidence behind claims alleged to be based in science.

By phone, email and post, I have attempted to contact Dr. Ruhullah Massoudi, the faculty member who led the study, requesting he address my concerns about his research, but I have not received a response. Therefore, by way of this letter, I am bringing the matter to your attention, and to that of Dr. Learie B. Luke and Dr. Judith Salley-Guydon, who are receiving copies of this correspondence.

Please allow me to explain the erroneous, unsubstantiated and/or misleading information that I believe your institution is promoting. To begin with, the research project conducted by Prof. Massoudi and former student Amid Hamidi entitled "Soybean Candles for Healthy Life and Well Being" was funded by the US Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) agency. As published on the USDA NIFA website, the goals of the research were to: *"address the realization of health and well being of our citizens by considerably reducing the possible environmental pollutants caused by candles made from petroleum-base. Studies related to the harmful chemicals of paraffin candles and the lack of comparable pollutants in soybean candles are of utmost interest. The second objective is to address the economical feasibility of replacing a renewable source like soybean for petroleum source, which is not renewable and depletes and depends on foreign import. Beyond that, using soybean would bring a healthy economy to our farmers by producing more and better products. Certainly this study would provide great deal of information concerning health issues relating to inhaling emissions from candles."*

It is apparent from this description that the research project was flawed from the start for two reasons; 1) the researcher predisposes that petroleum based candles pose a health risk and that soy candles are better for one's health (both unsubstantiated claims), and 2) the point of the research is to drive consumer demand for soy based candles by promulgating alleged dangers from petroleum based candles (which promises a conclusion beyond the study design, which proposes to measure candle emissions, and not health and safety).

Directing your attention specifically to the contents of the South Carolina State University news release, we find four significant factual errors:

1. First paragraph: "Long-term exposure to emissions of certain types of candles could be hazardous to human health and cause poor indoor air quality." My comment:
  - a) The presentation does not demonstrate that candle emissions are hazardous to human health or compare emissions to air quality standards.
  - b) The statement is not consistent with the available science on this topic. For instance, a 2007 study concluded that combustion by-products (from all types of candles) "were far below the most restrictive of any applicable indoor-air standards." (<http://candles.org/wp-content/uploads/2014/05/2007Okometricstudysummary.pdf>).
2. Third paragraph: "The chromatograms of the paraffin candles revealed some undesired chemicals, such as alkanes, alkenes and toluene, all reported to cause harmful effects to humans." My comment: The presentation provides no documentation that the detected alkanes and alkenes cause harmful effects. Regarding toluene, a single study (Lehman and Hein, 2006) is cited; the study suggests - but does not demonstrate - that exposure to organic solvents may be statistically associated with increased incidence of cancer among workers in shoe manufacturing. The exposure association is not specific for toluene or candle emissions.
3. Fourth paragraph: "For a person who lights a candle every day for years or just uses them frequently, inhalation of these dangerous pollutants drifting in the air could contribute to the development of health risks like cancer, common allergies and even asthma." My comment: The presentation cites four studies (Sasco et al. 2002, Bridges 2002, Api et al. 2002, Garza et al. 2008) as reporting "hazards of burning candles." None of the studies demonstrate a health risk, or that the substances are "dangerous":
  - a) Sasco et al. 2002 – "slightly elevated" odds ratio (OR = 1.41) claimed for "use of candles for lighting" cannot be considered as proven as the reported 95% confidence interval (OR = 0.42 - 5.01) indicates no significant difference between the observed OR and the null value (OR = 1).
  - b) Bridges 2002 – provides no information on candles.
  - c) Api et al., 2007 – concludes that exposure to fragrance materials tested does not pose a significant human health risk (margins of exposure >2000).
  - d) Garza et al. 2008 – in vitro (cell culture) assay; the relevance of the results (if any) to human health has not been demonstrated.

4. Sixth paragraph: “a possible increase in production and demand for soy candles could attribute to a decline of health risks caused by paraffin candles...”. My comment: The statement implies that paraffin candles pose a health risk, a conclusion not supported by any data.

Mr. Clark, I am sure that maintaining and enhancing the reputation of the University, its educators, its academic programs and its research are of critical importance to you. Continuing to allow this press release to remain on the University website, now that we have documented the unsupported and scientifically inaccurate claims, will reflect poorly on your institution. I urge you to take a stand for science and remove this information from your website.

Thank you for your consideration.

Sincerely,

A solid black rectangular box used to redact the signature of John Heinze.

John Heinze, Ph.D.  
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Cc: Dr. Learie B. Luke, Acting Provost and Vice President for Academic Affairs  
Dr. Judith Salley-Guydon, Chair, Department of Biological & Physical Sciences