

**This file covers the following items.**

- **Dr. Basnayake on the quality and quantity of Biochar for replacing urea, about coconut-shell biochar, and the carcinogenicity of biochar [with inserts in red by CDW]**
- **Dr. Methiksa Vithanage on “1 kg of biochar is equal to 1 kg of Urea”; and questionable fertilizers used currently.**
- **Dr. Basnayake’s reply to Methicka V.**
- **CDW comment on conspiracy theories, Bill gates, Monsanto etc.**

---

B.F.A. Basnayake <benb@pdn.ac.lk>

To:Chandre dharma-wardana

Cc:Vijaya Kumar,Nimal Chandrasena,Chandra Dissanayake,Buddhi Marambe,Madduma Bandara etc

Mon., Dec. 13 at 12:55 p.m.

Dear Prof. Dharmawardena,

I agree with you regarding quality of biochar. It is important to reduce the polyaromatic hydrocarbons (PAHs). We use steam gasification to end the pyrolysis process. We cure the biochar and conduct bioassays to check for the quality. The quality should be good for water purification.

You may not be aware, we are leading in this field of research. We use approximately 200 kg/ha of stable biochar like paddy husk or paddy straw for paddy cultivation.  
1 kg of biochar is equal to 1 kg of Urea.

If we use coconut shell char. it is only 20 kg/ha. The compost requirement is 200-250 kg/ha. Subsequently, we can reduce the amount of biochar.

**[CDW- compost requirement is a quarter-tonne per ha in some cases, while it is 10 Tonnes in other cases, see Dharmakirti’s Paranthan trials.**

**<https://dh-web.org/green/BBF/Paranthan2020ChrisD.pdf>**

**Unfortunately, coconut shell is an increasingly rare commodity, with a high world demand for its use in manufacturing activated charcoal for some niche uses. The 20 kg/ha is going to be exponentially expensive as time goes. It would be prudent to look for an alternative source, possible by siting wood in tea estates etc., if possible]**

There is an excellent paper done by the Chinese in collaboration with the USA on PAH (Wang et al., 2019) <https://www.sciencedirect.com/science/article/pii/S0160412019313273?via%3Dihub>

It states that "Higher application rates (e.g.  $\geq 20$  t/ha) of biochars with high PAH contents can be avoided to minimize human cancer risks". It is sad that they waste time without consulting us. One should not waste resources!!!

**[CDW- On the contrary, many INDEPENDENT tests are necessary by independent**

**groups. That is how science works. The soils in some given place in China are not the same as the ones that Ben and others may have used. Let them, and those in other places, do the tests, and confirm your results. It is good for you]**

We are dealing with kilogrammes not tonnes, unless it is a typos error.

Sir, I could not find your claim of Glyphosate being less harmful than biochar. Don't waste your time, they are only confusing you.

**[CDW- In the end, according tto the second law of thermodynamics, we are all wasting energy and increasing entropy, and that is the arrow of time.**

**However, you can read the IARC documents on Aromatic Polycyclic hydrocarbons, and take a given biochar and use a linear law to assess the summed toxicities, for each PAH found in the biochar.**

**IARC classifies even benzene as “carcinogenic to humans,” based on evidence that benzene causes acute myeloid leukemia (AML). IARC also notes that benzene exposure has been linked with acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (class I), multiple myeloma, and non-Hodgkin lymphoma is carcinogenic.**

**As for glyphosate, it is class-II and merely “probably carcinogenic at high doses” and not proven. So, farmers handling biochar regularly should use protective equipment.]**

Thank you,, Kind regards, Ben Basnayake

---

Prof. Meththika Vithanage <meththika@sjp.ac.lk>

To: B.F.A. Basnayake

Cc: Chandre dharma-wardana, Vijaya Kumar, Nimal Chandrasena, Chandra Dissanayake, Buddhi Marambe

Mon., Dec. 13 at 8:26 p.m.

Dear Prof. Basnayake

As a highly cited researcher (Clarivate), top 2% researcher in 2017, 2019 and 2020 and specifically being in the top 10 authors in SCOPUS who has published research work on "biochar", I regret to state that the claim you made on "**1 kg of biochar is equal to 1 kg of Urea**" is **WRONG!** It can never be unless the instrument you measured N has an issue with giving wrong data. Sorry about saying this bluntly though I admire you as an eminent scientist in the field of Waste Management and Agri Engineering.

Further, whatever we discuss here is no point unless we push the government to do something as we are heading for a food crisis in the coming 3-4 months. Even earlier.

**My view is we must go ahead with blended fertilizer both natural and artificial as we will not be able to survive with one alone (emphasis by CDW).** During the discussions going along in this forum, farmers are being faked and given bad quality fertilizers from various companies for a cost which is far too high and not worth. See below.



Please let me know the prices per kg of each in Dec 2021 to include here, and what may be a "fair price". (CDW)

Best  
Meththika

---

B.F.A. Basnayake <benb@pdn.ac.lk>  
To: Prof. Meththika Vithanage  
Cc: Chandre dharma-wardana, Vijaya Kumar, Nimal Chandrasena, Chandra Dissanayake, Buddhi Marambe  
Tue., Dec. 14 at 1:36 a.m.

Dear Prof. Vithanage,

I think you have misunderstood what I meant by 1 kg of biochar is equal to 1 kg of Urea. The biochar has the potential of mobilizing nitrogen, phosphorous, and potassium, and trace elements at a rate of 4-6% of the total needed. Although we apply a large amount of urea, the rate of uptake is slow and precipitates during the growth cycle. Unlike urea, much of the precipitated nutrients are once again adsorbed into biochar and then resupply when the plant needs. As I have mentioned in one of the emails and in published research findings, biochar serves as a receptor. Dr. Asoka Gamage proved it in her thesis and published the findings.

If you do not trust our research as I have stated in email 2, "TRI research shows similar or better yields with 100% biochar vs inorganic fertilizer". There should be adequate amounts of substrate and free-living microorganisms for the nitrogen and phosphate cycles to complement each other. The development of the microbiome is the key to the mystery. BFBFs and other biofertilizers enhance the biochar action in the enzyme catalytic activity.

I thought you knew that I am qualified in Applied Chemical Kinetics. It is a subject that deals with rates, and we can now optimize biosystems mathematically (Ariyawansa et al., 2018). We can also use Entropy as a measure to prove the value of biochar. In financial terms, the value of biochar is on par with urea.

I hope to do this review soon, hope you will join us because you are a valuable scientist for the country.

Although you are not aware, the farmers' crisis of not getting the fertilizer and the credit is a well-calculated one. It is a method to evict farmers from their lands. The concept of having large farms by vociferous academia is being materialized. The farmers were exploited throughout recent history. I am surprised that you were not awoken to the fact that some academics who instigated the rushed organic agriculture movement are now crying out loud for the poor farmers.

Monsanto scientists will go all out to make "Bill Gates" and Co. the new landlords of Asia. If US farmers lost the land to him, can we hold on to ours?

It may be speculative, but the Indian farmers won their battle today, but what is in stock for them in the future.

There are many US citizens (Indian and Sri Lankan origin) looking for land in Mahaweli H.

According to Mr. Ajith Nivard Cabraal, the Governor CB, if we take the IMF loan, we will have to forego our national assets.

Not only us many developing countries are at the mercy of these rich nations.

I am certain that we can overcome these obstacles if we unite to live good lives, we are Hela people !!!!

Kind regards,

Ben Basnayake

---

---

**In science we only use statements that can be tested.**

**Science is a doubt system and not a belief system.**

**Einstein may be qualified in various things but we don't take him at his word.**

**We don't look at his qualifications, his fame, citations etc; but look only at the science.**

**It is over a century since the two theories of relativity (special and general) were stated, but even today there are some hundreds of experiments set up to test the theories, even though all the experiments done so far during the last 100-110 years have shown no disagreement with Einstein's theories.**

So don't we upset if we distrust Ariyawansha's 2018 theory that treats substrate-enzyme processes using an extension of another century old equation, in a non-equilibrium context when non-equilibrium thermodynamics is totally an open issue?

Regarding political statements about what Bill Gates did, or plan to do, conspiracy theories etc., or what "Monsanto scientists did" are interesting, but we must leave them as mere political opinions and nothing else.

What Monsanto as a commercial firm (now Bayer) does is not determined by the Monsanto scientists, but by the Managers who meet the shareholders once every year.

Most Monsanto scientists may have a few stock options given to them, but they have no control over the commercial operations any more than, say, what Dr. Ben may have on what the current government is doing in regard to agricultural policy.

I know several "Monsanto scientists" whose scientific caliber, and level of honesty, and dedication to the good of humanity are second to none.

CDW