

Review Article

Promotion of CO_2 Assimilation Supposed by NO_x Is Best Way to Protect Global Warming and Food Production

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Citation: Shoichiro Ozaki, (2017) Promotion of CO_2 Assimilation Supposed by NO_x Is Best Way to Protect Global Warming and Food Production. Arch Pet Environ Biotechnol 2017:110. DOI: 10.29011/2574-7614. 100110

Received Date: 11 May, 2017; **Accepted Date:** 14 May, 2017; **Published Date:** 16 May, 2017

Abstract

The earth is warmed up by CO_2 and heat produced by burning of fossil fuel. Fix of CO_2 and absorption of heat by CO_2 assimilation supported by NO_x is best way to protect global warming and food production. NO_x is produced in nature when organic compound is burned and by sun. NO_x is playing most important role for the promotion of CO_2 assimilation. But NO_x is hated as pollution gas causing illness. Many governments set up very strict law to eliminate all NO_x in burned gas and forced to eliminate NO_x using ammonia. The reaction to kill one fertilizer by other fertilizer is giving heavy loss for protection of global warming, food production and our environment. The amount is so much. The effect to eliminate NO_x or use as fertilizer give great influence on agriculture, industry, economics electricity price, global warming. I am trying to explain by material balance analysis to insist that NO_x elimination should be stopped. Because toxicity of NO_x is not so serious compared with significant merit of NO_x is essential for plant to grow and produce food. By stopping of NO_x elimination procedures protection of global warming, production of food, increase of CO_2 fix will be accomplished.

Keywords: anti-aging food; CO_2 assimilation; CO_2 balance; global warming; NO_x , carbon dioxide, thunder

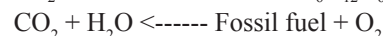
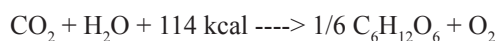
Introduction

The earth is warmed by the fossil fuel burning releasing CO_2 and heat. The plant is growing by CO_2 assimilation absorbing CO_2 producing carbohydrate and O_2 . If we can compensate the generation of CO_2 and heat with the absorption of CO_2 and heat by CO_2 assimilation, global warming can be protected. [1-6] NO_x is produced in nature when organic compound is burned and by sun. NO_x is playing most important role for the promotion of CO_2 assimilation. But NO_x is hated as pollution gas causing illness and acidic rain. Many governments set up very strict law to eliminate all NO_x in burned gas and forced to eliminate NO_x using ammonia. The reaction to kill one fertilizer by other fertilizer is giving heavy loss for our food production and human being. The amount is so much. The effect to eliminate NO_x or use as Fertilizer give great influence on agriculture, industry, economics electricity price, global warming. I am trying to explain by many explanations like thunder to insist that NO_x elimination should be stopped.

CO_2 Assimilation

CO_2 assimilation produces carbohydrate (glucose) and oxygen absorbing heat 114 kcal. Assimilation burning to increase the absorption of CO_2 and heat by CO_2 assimilation, we must increase the concentration of nutrient N, and nutrient phosphorous P.

Assimilation

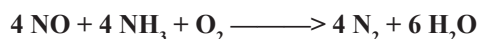


Burning

To increase the absorption of CO_2 and heat by CO_2 assimilation, we must increase the Concentration of nutrient N, and nutrient phosphorous P. Plankton photosynthesis is studied by many investigators [7-69]. These studies indicate that CO_2 assimilation is playing very important role for the regulation of climate. Supplies of nutrients are important factor for the promotion of CO_2 assimilation. When fossil fuel burned, much NO_x is produced. This NO_x is major source of nutrient N. If we use produced NO_x for the promotion of CO_2 assimilation, protection of global warming can be accomplished. Prof. Matsunaga, Tokyo Agriculture University

studied the fixing of carbon dioxide. Sea weed can grow 4320 g/m²/day, if enough N and P are provided [70].

NO_x elimination procedure should be stopped: NO_x is playing most important role for the promotion of CO₂ assimilation. But NO_x is hated as pollution gas causing illness and acidic rain. Many governments set up very strict law to eliminate all NO_x in burned gas and forced to eliminate NO_x using ammonia.



In this paper I wish to explain that NO_x is critically important compound and elimination process should be eliminated to protect global warming. I wish to insist that NO_x elimination should be stopped. Because toxicity of NO_x is not so serious compared with significant merit of NO_x is essential for plant to grow and produce food. NO_x is essential for the promotion of CO₂ assimilation and essential for the production of foods for the promotion of health and for the protection of global warming as shown by nature. Nature is producing huge amount NO_x by thunder. NO_x elimination procedures are amplifying global warming by three ways.

1. CO₂ assimilation and the growth of plant are retarded
2. Elimination procedure uses much precious fossil fuel to prepare ammonia.
3. Elimination process produces much CO₂.

Therefore NO_x elimination law should be eliminated. By stopping of NO_x elimination we can get 6 advantages

1. Increase of CO₂ fixing, heat absorption
2. Decrease of fuel consumption
3. Decrease of CO₂ generation, heat generation
4. Cost down of electricity price.
5. Increase of fish production
6. Promotion of anti-aging life

Toxicity of NO_x

No report as to the serious sick and dead person caused by NO_x is reported. NO_x is released at no person district such as sea side far from house. NO_x do not give serious damage to persons. NO_x is essential for the growth of plant and essential for the production of food and essential for all living biology. Therefore NO_x elimination procedure and NO_x elimination law should be eliminated.

NO_x is a precious gift from nature

Nature has systems to change N₂ to nutrient nitrogen. By thunder, the high temperature at fire place for cooking, warming up of room by burning of wood, by forest fire, by forest burning, by bonfire, and also burning of fossil fuel, NO_x is produced. The earth was born and plant appeared. and plant eat CO₂, H₂O and nutrient N, P and plant is burned then NO_x is produced to recover lost

plant. When no burning material present, like sea district, thunder storm make NO_x. NO_x is a precious gift from nature we should not against nature. We should not eliminate NO_x. We should use NO_x as it is. In 2015 fossil 1.4 million tones was burned and CO₂ 4.4 million tones and NO_x 2.4 million tones are produced. As C/N ratio [71, 72] of plant is around 5/1-50/1 (average 25/1). Plankton is growing by eating CO₂ and nutrient N and P by the ratio of C/N/P= 56/15/1. This ratio indicates that much nutrient N and P is absolutely necessary for the growth of plant and plankton.

NO_x promote wood and food production

In 1 liter rain water, 0.8 mg ammonium ion and 0.44 mg nitric acid nitrogen, total 1.2 mg of nitrogen is contained in 1970. As 1200 mm water fall in one year, 120 liter of rain fall in 1 m² in Japan, 15 kg nitrogen in 1 hectare area are given as fertilizer to all area irrespective to wood, field or sea. NO_x is produced by thunder. Old agriculture such as rice production was carried out without synthetic fertilizer using this natural fertilizer NO_x. In Japan, 2.8x10⁸ hector woods are present. 13.7 tones CO₂ is fixed at 1 hector wood in one year. 2.8x10⁸x13.7=3.4x10⁸ tone CO₂ can be fixed. Tree grew this amount.

Thunder produces NO_x and NO_x produce yellowtail (buri) and rice

Thunder produces NO_x from N₂ and O₂. [73-83]. About 4 million thunder in one day and about 30 x 10⁶ t NO_x is produced by thunder in one year and about 20-80% of NO_x is produced by thunder in the world. Otto et al [84] estimated that each flash of lightning on average in the turned 7 kg of NO_x. With 1.4 billion lightning flashes per year multiplied by 7 kg per lightning per year are 8.6 million tones. NO_x emission resulted from fossil fuel combustion are estimated at 28.5 million tone. Old agriculture such as rice production in Japan was carried out using NO_x. Old proverb says that many thunderstorm years gives good rice harvest. One thunder lightning give one inch growth of rice Thunder lightning is written as In azuma, Inez (rice) tsuma (wife). because thunder is so precious and essential like rice and wife. Kaminari (thunder) in Japanese character is written Ama (rain) on the top of Ta (rice field). Heavy snow falling (3 meter) district and many thunder district MinamiUonuma is famous for the production of most delicious rice Minamiuonumakoshihikari. Gulf Toyama (Toyamawan) and surrounding sea are rich in nutrient N from thunder produced NO_x and filled with plankton produce many fish like Yellowtail (Buri) and Crab (Kani). Therefore thunder is called as Buriokoshi (yellowtail producer) in Japan.

On the contrary, at Setoinland sea (sea between Shikoku and Chugoku in Japan) district, especially east part of Setoinland Sea between Okayama and Kagawa Prefecture, fewest rain fall district in Japan, thunder is very rare, once in 5 years. Therefore no NO_x is produced by thunder at this district. Fish industry and Nori (sea weed to make Makizushi containing 30% protein) manufacture of

this district were destroyed completely since the supply of NO_x was stopped by NO_x elimination law. These facts indicate that NO_x is playing very important role for the growth of plant, production of foods and protection of global warming.

CO₂, NO_x and heat balance in the world

Fossil fuel 1.4x10¹⁰ tones was burned at whole world in 2015 and about 4.4x 10¹⁰ tone CO₂ and 7.4 x10¹⁵ kcal were produced and 2.5x 10⁹ tone NO_x is produced. If we use this 2.5x 10⁹ tone NO_x for CO₂ assimilation, we can fix CO₂ 50x10⁹ tone (25x2.5 x 10⁹). The amount of NO_x produced is around 2.5x 10⁹ tones in whole world. To eliminate NO_x 2.5x 10⁹ tones, equimolar ammonia 11.3 billion ton is used. To make ammonia 11.3 billion tone, 2 billion tone hydrogen gas i.e. used. To make 2 billion tone hydrogen butane 6.4 billion tones is used. As the result, 17.6 billion tone CO₂ is released. If NO_x elimination is stopped, 17.6 billion tone CO₂ release can be stopped. And 17.6x 25= 440 billion tone CO₂ can be fixed.

CO₂, NO_x and heat balance in Japan

Fossil fuel 1.4x10¹⁰ tones was burned at Japan in 2015 and about 4.4x 10¹⁰ tone CO₂ and 7.4 x10¹³ kcal were produced and 2 x 10⁶ tone NO_x is produced. In Japan, 2.8x 10⁸ hector woods are present. 13.7 tones CO₂ is fixed at 1 hector wood in one year. 2.8x10⁸x13.7=3.8x10⁹ tone CO₂ can be fixed at wood. In Japan, 4.5x10⁷ hector cultivated land is present. 14.7 tone CO₂ is fixed at 1 hector in one year. 4.5x10⁷ x 14.7 = 6.3x 10⁸ tone CO₂ can be fixed in one year at cultivated land. Therefore 3.8x10⁹ + 6.3x 10⁸ = 4.4 x10⁹ tone CO₂ is fixed at land. This is far from production of CO₂. Therefore In Japan, 2.x 10⁶ tone NO_x is produced. If we use this 2 x 10⁶ tone NO_x for CO₂ assimilation, we can fix CO₂ 50x10⁶ tone (25x2 x 10⁶).

In Japan, 0.64 million tone butane is used for the elimination of NO_x. If we stop the elimination procedure, we can save the production of 1.76 millions tones CO₂. In Japan 0.64 million CO₂ is produced for the burning of garbage at high burning incinerator. If we stop the use of this incinerator, we can save the generation of 0.64 million tone CO₂. In Japan about 60 million tone fossil is used for the generation of electricity for purification of drainage. If we stop the elimination of nutrient N, P of drainage, we can save the release of 150 million tones CO₂. These methods are not enough, 4.4x 10¹⁰ - 4.4 x10⁹= 4. X 10¹⁰ CO₂ is still remain. This CO₂ must be fixed at sea. The promotion of CO₂ assimilation by increase of nutrient N and P is essential. Area of Seto Inland Sea (sea between Shikoku and Chugoku in Japan) is 47000 km². If we can get assimilation efficiency by the addition of nutrient N, P as rice field, 1.47t x 47x10⁵ = 69x10⁶ t CO₂ can be absorbed. and 114x47x10⁶=5.3x 10¹⁰ kcal heat will be absorbed. If we extend sea area to all Japan sea area, we can fix 30 times more CO₂ 2.1x10⁸ tone.

Elimination of NO_x, nutrient N and P resulted in the retardation of CO₂ assimilation and decrease of fish and clam production:

Seto Inland sea (Sea between Shikoku and Chugoku in Japan) Fish industry was glorious proving much fish and Nori (sea weed to make Norimakisushi) in 1970. Many petrochemical combines, and iron factories, power plants were building around this sea. Much CO₂ and NO_x were produced at this district. Japan government established Environment Ministry. This ministry established very strict laws to inhibit the release of NO_x and nutrient phosphorous. These laws stopped the CO₂ assimilation at Seto Inland sea. About 60 persons were engaged in Nori (sea weed to make Sushi, Onigiri, Norimaki contain 30% protein) culture at Hojo, Ehime, prefecture, Japan at 1978.

But since Nitrogen elimination Law for air and drainage, every person stopped Nori culture 1983 at this district. 90 % of Nori is produced at Seto Inland Sea in 1973. But now production at Seto Inland Sea dropped to 10 %. In Japan by insufficient supply of nutrient N by NO_x elimination law, fish industry suffered critical damage at Kuroshio (poor nutrient N.P) running sea especially at Seto Inland Sea district. Bream (Tai), Octopus (tako), Sea eel (anago), weed (nori) clam (a sari) decreased to near 0 %. Many fisherman lost job. Fish price increased five times and fish became much expensive than meat now. We Japanese can alive longest by eating fish as main protein source. But now we cannot buy fish easily. Japanese may lose long life record. Men 80.50 (third), women 86.63 (top) Recent Yomiuri news paper reported [85,86] that clam digging gathering business stopped at main clam digging sea shores since 4 to 10 years, because clam (a sari) production decreased from 160 thousand tone in 1983 to 13 thousand tone in 2015. In 1980, N and P elimination policy of government started These facts indicate that N ,P elimination policy effected the decrease of N.P concentration of sea water and deactivation of plankton growth and decrease of fish , clam and sea weed (nori) productions remarkably.

Fish is a best anti-aging food

People are looking for materials effective for anti-ageing and long life for many years. Dr Nabeshima found anti aging gene named Klotho [87-89]. The mouse having this anti aging gene can live 30 % longer. Klotho can keep homeostasis and keep health and give long life. Dr. Nabeshima also found that Klotho was co-working with disaccharide having mass 843.28 Th-His- Gln-O-D-3-sulfo-glucuronosyl-glucopyranoside. The author synthesized 5 disaccharides, anti-aging reagents, having similar structure from known structure compound. Disaccharides are sulfo-glucuronosyl (1-3) glycoside, sulfo-glucuronosyl (1-3) galactoside [90-94]. Old proverb says "Keep umbilical cord (connecting tubes between placenta of mother and unborn-baby for the supply of nutrition) in the

chest drawer. When get incurable sick, boil it for long time and drink the boiled water". Hyaluronic acid is a main constitutional substance of naval string, an umbilical cord. Hyaluronic acid, glucosamine, chondroitin are precursor of anti-aging reagents and now used as health food by many persons in Japan.

Suntory sold 19 million bottles of glucosamine and chondroitin as nutrition supporting food. Setagaya shizenshokuhin sold 200 million bags of glucosamine, hyaluronic acid and chondroitin as health food for 11 years. Taishoseiyaku are selling glucosamine and chondroitin. Average life in Japan: male is 80.50 (third), female is 86.83 (top in the world). The author believe that long life of Japanese come from the habit to eat fish containing glucosamine, hyaluronic acid and chondroitin in as a main protein source. For good health, anti-ageing and long live, I advise you to eat fish, if possible, whole body of fish if you wish to live longer [90-96]. Hyaluronic acid is found in the highest concentrations in fluids in the eyes and joints.

Electricity generation by solar cell system

Construction of solar mega system by the sacrifice of wood is not clever way. 1 hector wood can absorb heart 3.8x 10⁶ kcal and can fix 13.7 tones CO₂. Heart absorption efficiency of solar system cell is 1/3 of green leaf of tree. Solar system cell cannot fix CO₂. For the preparation of solar cell material, much fossil fuel is necessary generating almost same amount of CO₂ in compared with the generation of CO₂ and electricity by burning of fossil fuel. Therefore I think construction of solar mega system by the sacrifice of wood should be stopped.

Electricity generation should be done by coal

Japan government asking electricity generation by oil and natural gas than coal, because coal generates more CO₂ than oil but I think coal is better for the generation of electricity. Because the difference of CO₂ generation by both fuels is not much CO₂ increase can be saved by the decrease of CO₂ emission by stopping NO_x elimination procedure. When we compare buried amount, coal (132 years) is 3 times as much as oil (42 years) and natural gas (60 years). We can manufacture many kind of chemical and plastic from oil. Oil is more convenient as transportation fuels. Therefore oil and natural gas are 3 times more precious than coal. Price of coal is 1/3 of oil. Therefore we can generate electricity by coal at low price. The price of electricity is very important for the competition of productive industry. We can enjoy our civilized life longer by saving the consumption of oil and natural gas.

Summary

Promotion of CO₂ assimilation supposed by NO_x is best way to protect global warming. NO_x elimination in burned gas should be stopped. NO_x is playing very important role for the growth of plant and CO₂ assimilation. Protection of global warming and production of food and wood are possible by effective use of NO_x.

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