




The Neutral Theory (Theory of Genetic Drift) and the Nearly Neutral Theory of Molecular Evolution are Opposite to Evolution

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ABSTRACT

The Neutral theory (also known as the theory of genetic drift) means genetic drift and vice-versa. But the Nearly Neutral theory means genetic drift plus natural selection. However, genetic drift changes the gene frequency randomly and thus it is non-additive, directionless and thus valueless for evolution. Again, genetic drift works only in small populations and thus, genetic drift means small population. But small populations have to inbreed and produce homozygous organisms. Consequently, those populations suffer from various diseases and abnormalities and finally may suddenly extinct. Moreover, any homozygous organism means zero variation, mutation-genetic drift equilibrium also creates zero variation. But variation is the raw material of evolution; so, no evolution occurs by the genetic drift. So, evolutionary biologists rejected both the genetic drift and the small populations for any kind of evolution. Hence, the Neutral theory is opposite to any kind of evolution. Again, recent experiments of ecological genetics with small populations, 12 biochemical tests, and the data of the DNA sequence, fossil evidence oppose the Neutral theory. Furthermore, the rate of evolution by the Neutral theory is equal to the rate of mutation. But mutations are opposite to any kind of evolution. So, biologists rejected the Neutral theory. As the natural selection is not justified in Nearly Neutral theory; so, Neutral theory=Nearly Neutral theory. Consequently, the rejection of the Neutral theory means the rejection of the Nearly Neutral theory. Thus, both the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution.

KEYWORDS: Genetic drift, molecular evolution, neutral mutations, small populations

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1. INTRODUCTION

The Neutral theory was introduced by the Japanese biologist Motoo Kimura in 1968 and independently by two American biologists Jack Lester King and Thomas Hughes Jukes in 1969, and was described in detail by Kimura in a monograph in 1983. In their own languages: “i) We must recognize the great importance of random genetic drift due to finite population number in forming the genetic structure of biological populations for the molecular evolution (Kimura, 1968). ii) The Neutral theory postulates that nucleotide substitutions (molecular evolution) inherently take place in DNA as a result of point mutations followed by random genetic drift in finite populations (King and Jukes, 1969).” So, the random genetic drift, rather than the natural selection, is the main cause of evolutionary processes at the molecular level (Kimura, 1983, Kimura, 1991, Steen, 2017, Wal and Ho, 2019, O’Dwyer and D’Andrea, 2021). The Neutral theory is also known as genetic drift (Miller and Harley, 1996), the theory of random drift (Ridley, 2004), and the theory of genetic drift (Futuyma, 2003). So, natural selection is absent in the Neutral theory (Ho and Fox, 1988). Hence, the Neutral theory means the genetic drift, finite population, and vice-versa. However, according to Tomoko Ohta, genetic drift also works in large populations. So, by including natural selection in the Neutral theory, he formulated the Nearly Neutral theory (Ohta, 1972, Ohta, 1973, Ohta, 1992, Ohta, 1996, Wal and Ho, 2019). So, the Nearly Neutral theory means genetic drift plus natural selection. Consequently, genetic drift is the key force of both the Neutral theory and the Nearly Neutral theory. Nonetheless, there are many criticisms about evolution through genetic drift such as genetic drift is non-additive (Fried and Hademenos, 2009), directionless (Ridey, 2004) and thus no evolution occurs by it. As genetic drift is the key force of both of the Neutral theory and the Nearly Neutral theory. So, those criticisms go against those two theories and create doubt about evolution through these theories. Furthermore, many evolutionary biologists rejected the Neutral theory. For example, the Neutral theory has been controversial for a long time (Nei et al., 2010). Even, this theory has been devastatingly rejected by the biologists (Mathew and Jensen, 2015). Additionally, this theory was supported by unreliable theoretical and empirical evidence from the beginning, and that in light of the modern genome-scale data, can be rejected firmly its universality. Thus, the Neutral Theory has been massively rejected by the evolutionary biologists (Kern and Hahn, 2018). So, there is uncertainty and doubt about whether molecular evolution occurs through the Neutral theory. So, it is necessity to remove those uncertainty and contradiction for the benefit of modern biological science. As the review of the literature reveals that the research

articles against the Neutral theory and the Nearly Neutral theory are very limited in the biological world and as “Science searches, which is the truth” (Ahad, 2019a, Ahad, 2020). So, this article aims to work on whether “The Neutral Theory (the theory of genetic drift) and the Nearly Neutral theory are opposite to evolution or not.”

2. DOCUMENTS ABOUT THERE IS NO JUSTIFICATION FOR DARWIN’S THEORY OF NATURAL SELECTION IN THE NEARLY NEUTRAL THEORY AND THE NEUTRAL THEORY=THE NEARLY NEUTRAL THEORY

The genetic drift works only in a small and isolated population (Finite population), yet according to Tomoko Ohta points out that the genetic drift also works in large populations. So, by including natural selection in the Neutral theory, he formulated the Nearly Neutral theory (Ohta, 1972, 1973). However, Steen demanded that there is very confusion about the differences between the Neutral theory and the Nearly Neutral theory. As the most notable difference between these two theories is the effect of population sizes (Steen, 2004).

Therefore, if it is able to prove that genetic drift works only in a finite population but not on a large population; then Darwin’s theory of natural selection would be not justified in the Nearly Neutral theory and the Neutral theory will be the equal to Nearly Neutral theory. However, genetic drift works only in a finite populations. There are numerous published literatures about it but a few are placed here:

- i) Wright (1931, 1932, 1982), Mayr (1942, 1954, 1963), Eldridge and Gould (1972), Gould and Eldridge (1977), Stanley (1975) formulated their theory: Shifting Balance theory, Allopatric Speciation theory, Punctuated Equilibrium theory and Species Selection theory, respectively on the idea that the genetic drift works only in a finite populations but not in a large populations.
- ii) World renowned various authors of globally refuted books such as Dodson (1960), Starr and Taggart (1989), Smith (1990), Wallace (1990), Futuyma (2003), Ridley (2004) Purves and Orians (1987) and Hickman et al (2008) mentioned in their books that the genetic drift rapidly works in a finite populations but not in large populations.
- iv) According to “Balancing selection” hypothesis natural selection favors the heterozygote organisms and disfavors the homozygote organisms (Ehrlich and Roughgarden, 1987), as the genetic drift produces only homozygotes organisms (Ahad, 2019b). So, natural selection is functionless with the genetic drift i.e. natural selection is functionless in finite population.
- v) It is recently proved that genetic drift rapidly works in a finite populations but not in a large populations (Ahad,



2019b, 2022a).

Finally, it is documented that the genetic drift works rapidly in finite populations but not in large populations. So, there is no justification of natural selection in the Nearly Neutral theory, which clarify that the Neutral theory=the Nearly Neutral theory,

3. GENETIC DRIFT IS OPPOSITE TO ANY KIND OF EVOLUTION

The literature claimed that genetic drift is opposite of any kind of evolution. There are numerous documents but a few are placed here with various subheading:

3.1. Genetic drift changes the gene frequency randomly and thus unfit for evolution

Genetic drift randomly changes the gene frequency. Hence, the alternate term of genetic drift is the random genetic drift (Brewer and Sing, 1983, Wallace, 1990, Gardner et al., 1991). However, random changes of gene frequencies are very harmful and could not produce any fittest organism; to produce the fittest organism, a gene frequency must be changed in a well-planned way.

To support this idea, there is countless literature but few are cited here shortly:

- i) It is a question that if changes occur randomly in a gene of on an organism, how can a complex and highly coordinated structure would develop, since its production requires innumerable variations of just at the right degrees, in right place and at the right time (Sinnott and Wilson, 1963).
- ii) Any random change is likely to harm on otherwise a smoothly operating system at all in an efficient organism (Stanley and Androkovitch, 1984).
- iii) To change randomly in the sequence of a base of an organism may prove itself as a highly bad one. This effect could be compared with an accidental interchange of 'Letters' in an otherwise judicious text. The misprint, contrary to the author's intention, may alter the sense of the clause in the most unexpected way (Maciejowski and Zieba, 1982).
- iv) The random change of gene frequency of an organism would interfere with the performance of it or at best would have no effect on its performance and thus no evolution would occur (Wolfe, 1983).
- v) It is pointed out that a random change of a pocket-watch would not improve the watch. Similarly, an earthquake does not develop a city, rather it brings down destruction to it. Thus, the random change in the gene frequency of an organism would not improve the fitness of any organism, rather it brings down destruction of the organism (Ranganathan, 1988).
- vi) World renowned geneticist Gardner and his co-authors

opined that the problem of evolution is by genetic drift that it places a great emphasis on random changes (Gardner et al., 1991).

Thus, it is verified that the genetic drift changes the gene frequency randomly and thus it unfits for evolution.

3.2. Genetic drift is a mimic of inbreeding

Genetic drift is mimics to inbreeding (Smith, 1990). Often, inbreeding is a consequence of small population (Tamarin, 1996). Furthermore, in small population, the choice of mates often includes their relatives (Brewer and Sing, 1983).

But inbreeding means mating between the nearest relatives, which reduced the various qualities of offspring including survival.

3.3. Genetic drift produce homozygous organism and it is mathematically proved

Genetic drift produces homozygous organisms and it is mathematically proved:

According to Smith (1990), the effect of random genetic drift in a small or subpopulation produced a homozygous organism, which could be mathematically proved by the fixation index equitation:

$$F_{ST} = (H_T - H_S) / H_T \dots\dots\dots(1)$$

Where H_S represent the heterozygosity of a random-mating subpopulation and H_T represents the heterozygosity in an equivalent random-mating total population. Thus, the fixation index F_{ST} is the probability that two alleles chosen at random in the same subpopulation are identical by descent. As in inbreeding, the value of F will change; so, genetic drift continues generation after generation. This changing value of F (dropping the subscript ST), identified as F_t to represent the average value of the fixation index in subpopulations in generation t, is

$$F_t = 1 - (1 - 1/2N)^t \dots\dots\dots(2)$$

The value of F_t will range from 0 for no homozygosity to 1, complete homozygosity (Smith, 1990).

Hence, it is proved that the effect of random genetic drift in a small population produce homozygous organisms and it is mathematically proved. Nonetheless, homozygous organisms are unfit for any kind of evolution.

3.4. Authors of globally reputed books rejected the genetic drift for any kind of evolution

The genetic drift is non-additive and valueless for evolution. So, the world-famous various authors of globally refuted books rejected it for any kind of evolution. There are numerous works of literature but a few are mentioned here:

- i) The importance of the genetic drift in any species formation is currently under intensive study and question also (Russell, 1998).
- ii) The genetic drift is non-adaptive

and thus no evolution occurs by it (Fried and Hademenos, 2009). iii) The genetic drift is directionless and hence, no evolution occurs by it (Ridley, 2004). iv) Drift is not a directional evolutionary factor and thus it cannot drive evolution (Valenzuela, 2013). v) Genetic drift acts as a nondirective and non-additive force of evolution, so evolution by this, is quite impossible (Wolfe, 1983, Singh and Umyenoyama, 2009). vi) The effects of genetic drifts on evolution are fairly discreditable (Miller and Harley, 1996). vii) Genetic drift is a random change of allele and thus no evolution occurs by it (Gardner et al., 1991). viii) The genetic drift would constitute the evolution of an aimless and usually disadvantaged or fatal class (Anonymous, 1967). ix) The action of the genetic drift on the evolution of an organism is a subject of considerable debate (Futuyma, 2003, Rastogi, 1994). x) Genetic drift cannot drive evolution (Valenzuela, 2013). xi) Evolutionary biologists denied the importance of the genetic drifts on evolution (Hickman, 1970).

Hence, it is documented that authors of globally refuted books rejected the genetic drift for any kind of evolution, as it is non-additive, nondirective and thus valueless for evolution.

Lastly, it is proved that genetic drift is opposite to any kind of evolution. As genetic drift is the main force of both the Neutral theory and the Nearly Neutral theory, so, these two theories are rejected by the world famous various evolutionary biologists.

4. SMALL POPULATION (FINITE POPULATION) IS OPPOSITE TO ANY KIND OF EVOLUTION

It is previously proved that genetic drift rapidly works in a finite populations but not in a large populations. So, small population means genetic drift and vice-versa. So, if it is possible to prove that small populations will be opposite any kind of evolution, then both the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution. Now it would be proved that the small populations are opposite to any kind of evolution:

4.1. *Finite animal populations have to inbreed and consequently, suffer from numerous diseases*

Finite animal populations have to inbreed that produced homozygous organisms and consequently, those animals suffer from various diseases, abnormalities and finally may extinct. There are numerous; literature but a few documents are placed here:

Inbreeding increases the juvenile mortality rates of hippopotamus, cheetah, elephant, and other wild animals (Weaver and Hedrick, 1997). In all domestic bird species inbreeding has been shown to cause a decline in traits

affecting reproduction and viability (Crawford, 1990, Woodard et al., 1983). The arctic rabbit and the lemming suffer plunge periodically due to small and isolated populations. Again, due to the genetic drift, the population shows a higher degree of homozygosity, which is poorly adapted and becomes evolutionary blind alleys (Dodson, 1960).

Therefore, it is recognized that finite animal populations have to inbreed and consequently, suffer from numerous diseases.

4.2. *Recent experiments with small population sizes oppose any kind of evolution*

Numerous experiments with small population sizes oppose any evolution in those populations. For example: i) During a 35-year of studies of small population size in prairie chickens indicated that population size decreased gradually, due to low fertility and low hatching rates of eggs, and finally, reduced survival fitness (Westemeier et al., 1998). Furthermore, scientific experiments and observations carried out in recent years have revealed that being in a finite population is not an advantage for the theory of evolution from the genetic point of view (Soule and Mills, 1998).

Therefore, it is recognized from the recent experiments with small population sizes oppose any kind of evolution.

4.3. *Small and isolated populations may extinct suddenly*

Small and isolated populations may become extinct suddenly, as that populations grow without variation, the whole population, no matter how large, is extremely susceptible to diseases and environmental changes (Wallace, 1990). So, the Alaskan northern elephant seal (*Callorhinus ursinus*), African cheetah (*Acinonyx jubatus*) (Starr and Taggart, 1989), Pere David's deer (Weaver and Hedrick, 1997), European buffalo/wisent may extinct suddenly, and its best example is the extinction of American heath hen in 1930 (Wallace, 1990).

Thus, it is documented that small and isolated populations may extinct suddenly.

4.4. *Laws in all civilized countries against the marriage between very close relatives to prevent inbreeding*

Inbreeding is vital, particularly to human pedigree, because those have recessive diseases (e.g. the albino) are the products of mating between relatives from consanguineous mating (Weaver and Hedrick, 1997). Additionally, the diseases observed in the offspring of consanguineous marriages include sickle cell anemia, congenital heart diseases, diabetes, hypertension, coronary heart disease cystic fibrosis etc. (Reddi, 1992, Ayala and Kiger, 1980). As a result, today, there are laws in all civilized countries against the marriage of very close relatives (Altenburg, 1970). Thus, it is documented that laws in all civilized countries against

the marriage of very close relatives to prevent inbreeding as it produced various diseases in humans.

5. THE GENETIC DRIFT AND SMALL POPULATION SIZES HAVE NO ADAPTIVE VALUE

Research of various geneticists indicated that both of empirical data and theoretical advances have adequately collected evidence, which suggested that the genetic drift and small population sizes have no adaptive value for evolution (Shapiro, 2000, Fay, 2002, Begun, 2007, Akey, 2009, Ahad, 2019b).

6. VERY RECENT PUBLISHED ARTICLES REJECT EVOLUTION VIA THE GENETIC DRIFT AND SMALL POPULATIONS

The genetic drift rapidly works in a small and isolated population but not in a large population. Hence, the genetic drift means small and isolated population, and vice-versa. But the genetic drift creates zero variation. Again, if there is no variation (raw materials of any kind of evolution), there is no evolution. Hence, evolutionary biologists rejected the genetic drift for any kind of evolution. Again, the genetic drift means small and isolated populations but those have to mate with their close relatives producing homozygous organisms. But such organisms have low fecundity, suffer from various diseases, least fitted to survive and may extinct suddenly, e.g. the American Heath hen. Thus, genetic drift and small and isolated populations are opposite to any kind of evolution, even have risk for extinction (Ahad, 2019b). Therefore, very recent published research articles reject evolution via the genetic drift and small population.

7. CURRENT EXPERIMENTS OF ECOLOGICAL GENETICS DISCARD THE VALUE OF THE GENETIC DRIFT FOR EVOLUTION

The current field experiments of ecological genetics by Cook and Jones (1996), Wade and Goodnight (1991), Goulson and Owen (1997), Coyne et al. (1997), Coyne et al. (2000), Jones (2000), Skipper (2002), Mallet (2005) and many other researchers demonstrated that the genetic drift has no value for evolution. But the genetic drift is the key force of both the Neutral theory and the Nearly Neutral theory. So, the recent field experiments of ecological genetics discard both the Neutral theory and the Nearly Neutral theory.

8. MUTATION - GENETIC DRIFT EQUILIBRIUM IS ONE OF THE KEYPOINTS OF THE NEUTRAL THEORY, WHICH OPPOSES ANY KIND OF EVOLUTION

The mutation-genetic drift balances or equilibrium is one of the key point of the Neutral theory (Kimura and

Ohta, 1971, Johnson, 2003, Kern and Hahn, 2018). In this model, most genetic changes in a population are the results of constant mutation pressure and the genetic drift (Kimura, 1989). Hence, the equilibrium between mutation and the genetic drift is one of the key point of the Neutral theory.

Nevertheless, the equilibrium between mutation and drift creates zero variation, but variation is the raw material of any kind of evolution and some such documents are placed here:

- i) Mutations replenish/refill variations, which are lost by the genetic drifts leading to the state of mutation-genetic drift balance/equilibrium (Gardner et al., 1991, Snustad and Simmons, 2000). Even, this issue is mathematically proved (Figure 1a and 1b). Hence, the genetic drift creates zero variation. But variation is the raw materials of evolution; if there is no variation, there is no evolution (Purves and Orians, 1987, Smith, 1990).

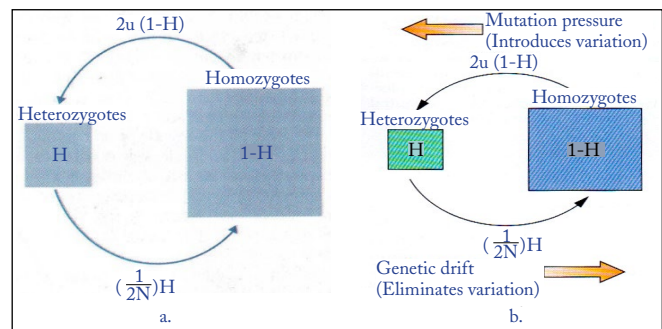


Figure 1: a. Mutation-genetic drift balance (Source: Gardner et al., 1991), b. Mutation-genetic drift balance (Source: Snustad and Simons, 2000)

Therefore, it is documented that the mutation-genetic drift equilibrium is one of the key point of the Neutral theory but it opposes strongly any kind of evolution.

In support: over the past era, both the experiential data and the theoretical advances have adequately collected evidence, which suggest that the adaptive evolution is not is not possible by the mutation-drift equilibrium in the natural populations (Sheehan, 2016, Schrider, 2017). Moreover, the equilibrium between mutation and drift is one of the key point of the Neutral theory. But current data appear to be basically incompatible with the Neutral theory (Kern and Hahn, 2018). In addition, Valenzuela (2013) pointed out that the most important conceptual errors in the Neutral theory and Nearly Neutral theory are recurrent forward and backward mutations that necessarily occur synchronously with the random genetic drift, making fixation is quite impossible and thus no evolution occurs by it.

9. THE RESULTS OF 12 BIOCHEMICAL TESTS DISCARD THE NEUTRAL THEORY

It is reported that there are at least twelve different biochemical tests (e.g. McDonald-Kreitman test/MK

test) applied to the genome-wide analyses) indicating that the Neutral theory is opposite to any kind of evolution (Kreitman, 2000, Nei et al., 2010).

Hence, the results of the 12 biochemical tests discard the Neutral theory. As, it is previously proved that the Neutral theory=the Nearly Neutral theory, so, those results of twelve biochemical tests also go against the Nearly Neutral theory, and thus those two theories are opposite to any kind of evolution. Consequently, it powerfully supports the results of the present study.

10. THE DNA DATA SEQUENCES REJECT THE NEUTRAL THEORY

The Neutral theory postulates that nucleotide substitutions (molecular evolution) inherently take place in DNA (King and Jukes, 1969) and evolution is a change in DNA composition (Wallace, 1990). But many evolutionary biologists such as Futuyma (2003), Johnson (2003) and Ohta (2013) drew attention to the fact that the data of DNA sequences reject the Neutral theory.

As, it is previously proved that there is no differences between the Neutral theory and the Nearly Neutral theory. So, those results of the data of DNA sequences also go against the Nearly Neutral theory. Thus those two theories are opposite to any kind of evolution. So, it strongly supports the results of the present study.

11. BOTH THE NEUTRAL THEORY AND THE NEARLY NEUTRAL THEORY THE SO-CALLED NULL HYPOTHESIS

World-famous British evolutionary biologist Mae-Wan Ho and American evolutionary biologist Sidney Fox (1988) declared that the Neutral theory is a so-called or self-styled null hypothesis. Moreover, Mayr (1995) claimed that the Neutral theory is the so-called null hypothesis of evolution, as, evolutions through the neutral mutations are evolutionary "Noise" only rather than evolution.

Therefore, the Neutral theory are so-called null hypotheses. As it is previously proved that the Neutral theory=Nearly Neutral theory. So, both the Neutral theory and the Nearly Neutral theory are so-called null hypotheses and thus, those two theories are not genuine theory of evolution.

12. NEUTRAL THEORY=MUTATION=GENETIC DRIFT, BUT THE MUTATION IS OPPOSITE TO ANY KIND OF EVOLUTION

Literatures claimed that the Neutral theory = mutation = genetic drift, but mutation is opposite to any kind of evolution:

i) Mutations followed by random genetic drift in finite

populations (Kimura, 1968, King and Jukes, 1969). ii) Neutral mutations express through genetic drift (Starr and Taggart, 1989). iii) The Neutral theory proposed that the rate of evolution is equal to the rate of mutation and it is completely determined by the force of the mutation (Gardner et al., 1991, and Futuyma, 2003). iv) Evolution through the genetic drift in a finite population is dependent on mutations (Hickman, 1970 and Cassan, 2008). v) Genetic variation is continually entering by mutations and leaving by the genetic drift (Ehrlich and Roughgarden, 1987).

Hence, Neutral theory=mutation=genetic drift. But mutation is opposite to any kind of evolution:

All mutations arise by the errors of DNA/gene replication and damage of DNA/gene. Again, mutations disturb the metabolic process. Hence, it is harmful for all living organisms, hence about 3,500 diseases (including cancer) are found in humans by a single gene mutation. Again, expresses only in homozygous state. Homozygous organisms suffer from various diseases, least fitted to survive and may extinct suddenly. Moreover, albino and double-headed animals are very common in nature, which arise by mutations, yet an albino or double-headed animal variety/race is developed either naturally or artificially. As gene mutation is responsible for the evolution of humans from the chimpanzee, so, humans were not evolve from the chimpanzees. If chimpanzees were evolved into a human, then no chimpanzees could be found in the world. Similarly, since, evolution is a continuous process, at present, it is occurring rapidly, mutations are constantly occurring in plants and animals. Consequently, all other organisms have to transfer into another organism successively and present organisms have to be absent from the earth but not so happen. However, if a new type arises accidentally by the mutations but by random mating, it returns to the original type, and by non-random mating, it produced homozygous organisms and may extinct over time. Hence, there is no evidence that a species evolved either artificially or naturally. Consequently, mutation is opposite to any kind of evolution (Ahad, 2011a, 2014, 2022a, 2022b).

Thus it is proved that Neutral theory=mutation=genetic drift. So, Neutral theory is opposite to any kind of evolution. As, it is previously proved that the Neutral theory=the Nearly Neutral theory. Therefore, the Nearly Neutral theory is also opposite to any kind of evolution.

13. THE FOSSIL EVIDENCE IS OPPOSITE TO THE NEUTRAL THEORY AND THE NEARLY NEUTRAL THEORY

Evolution is a change in the gene/DNA frequency of an organism (Wallace, 1990) and it is a continuous process

(Birdsell, 1975, Anonymous, 1992). Even, at present, evolution is occurring rapidly (Ville, 1957, Anonymous, 1994). But according to the geological time scale, the existing plants and animals evolved during millions and millions of years ago.

But those organisms are still unchanged, as those are identical to their fossil, though the agents of both the Neutral theory and the Nearly Neutral theory (genetic drift, neutral mutations and natural selection) are working continuously on the existing organisms during the last vast period of time. A few specific examples of fossil evidences are placed here:

i) All the obtained fossils of plants are identical to the existing plants. For example, bryophytes (Figure 1–2), conifers (Figures 3–7), ferns (Figures. 8 and 9), and gymnosperms (Figures 10 and 11), are identical to their existing forms.

Again, it is assumed that the psilopsida is the ancestor of the whole vascular plant group (Sinnott and Wilsons, 1963), but the fossil of the psilopsida e.g. *Ginkgo biloba* (Figures 12 and 13) and *Psilotum* (Figures 14 and 15) are quite identical to their existing forms.

i) All the invertebrate fossils are identical to the existing invertebrates. For example- *Neoplina* (Figure 16 and 17) and horse shoe crab *Limulus* (Figure 18 and 19) are identical to their fossil (Figure 20)

iii) All the vertebrate fossils are fully identical to the existing vertebrates. For example

a) Crocodiles evolved during the Mesozoic era about 240 million years ago (Alter, 1996). But still, current crocodiles look practically rather alike in their fossils (Figures 21 and 22). So, crocodiles are still remain unchanged.

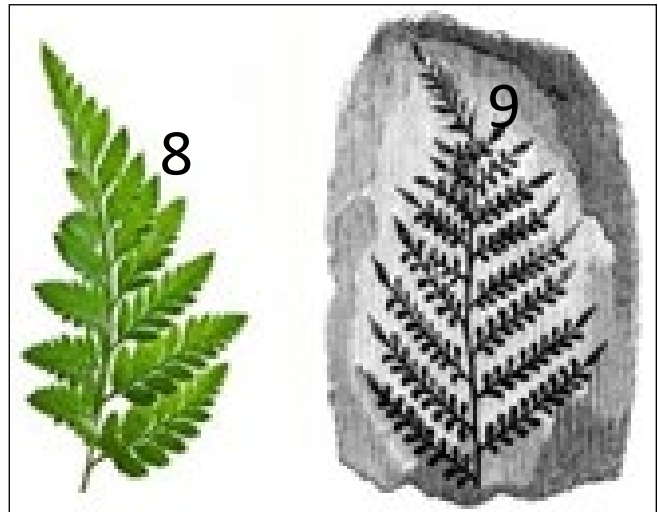


Figure 8: Fern Figure 9: Fossil of fern



Figure 10: Gymnosperm; Figure 11: Fossil of gymnosperm leaf



Figure 12: *Ginkgo biloba*; Figure 13: Fossil of *Ginkgo biloba*



Figure 14: *Psilopsida*; Figure 15: Fossil of *Psilopsida*

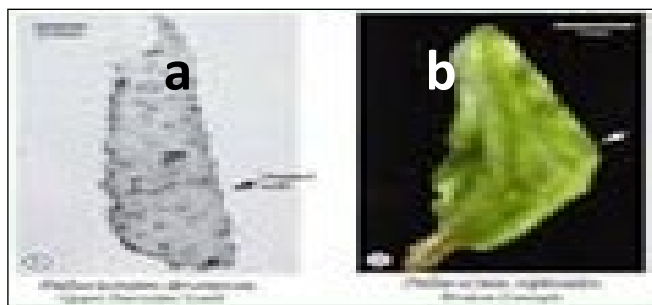


Figure 2: a) Bryophyte b) its fossil



Figure 3: Conifer leaf, Figure 4: Conifer leaf's fossil Figure 5: Conifer fruit, Figure 6: Conifer fruit's fossil

b) It is thought that amphibians are modified into reptiles, but the primitive amphibians (tail toad *Ascaphus* spp.) are still living in the wet forest of the Pacific coast (Gupta, 1997) and it is fairly identical to its fossils (Figures 23 and 24).



Figure 16: *Neopilina* (from Google); Figure 17: Fossil of *Neopilina* (Source from Google)



Figure 18: *Limulus* (Keeton, 1980); Figure 19: *Limulus* (Source from Google); Figure 20: Fossil of *Limulus* (Wilson et al., 1977)

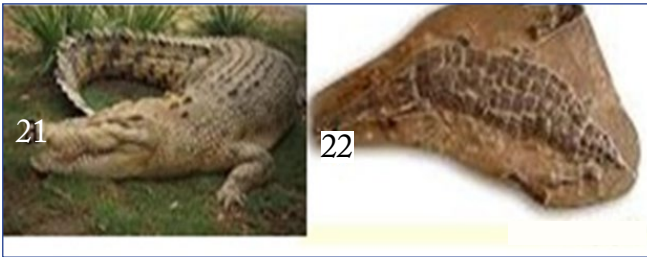


Figure 21. Crocodile (Source from Google); 22 Fossil of a crocodile (Source from Google)



Figure 23: *Ascaphu* spp; Figure 24: Fossil of *Ascaphu* spp

Hence, it is verified that though agents of the Neutral theory and the Nearly Neutral theory continuously worked on the existing organism millions of years ago, but their fossil evidences indicates that those are still unchanged.

Whereas, it is claimed that fossils provide the most clear-cut, convincing, strongest, verified, and direct evidences of evolution (Kimball, 1974, Hickman, 1970, Gottfried, 1993, Johnson, 2003).

Thus, the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution.

14. ABSENCE OF EVIDENCE ABOUT THE EVOLUTION OF A NEW SPECIES EITHER

ARTIFICIALLY OR NATURALLY

There is no evidence that a reproductively isolated variety/race species evolved either by artificially or naturally through by the agents (genetic drift, mutation or by natural selection) of the Neutral theory and the Nearly Neutral theory. If a new type of animal variety/race/breed arises accidentally by genetic drift, small populations or mutation but by random mating, it returns to the original type, and by non-random mating, it produced homozygous organisms and may extinct over time. For example, an albino baby/man is the most common in nature but by random mating, it produces a normal man in the next generation and by non-random mating, it produced homozygous humans and suffer from numerous disease and it may extinct over time. Hence, “The main races of human are Caucasoid, Mongoloids (including Chinese, Japanese, Koreans, and American Indians, etc.), and Negroid (Anonymous, 2008).” If marriage/mating would occur randomly among those races, then those races will be merged into one. But laws and norms prohibit marriage/mating among them. As a result, “So long as diverging races are not yet developed and are reproductively isolated, they are potentially able to hybridize and merge back into a single population. Thus, human races are an excellent example of such merging process (Sinnott et al., 1998).”

Hence, there is no evidence that a species has evolved or will be evolved either by artificially or naturally (Ahad and Ferdous, 2015, Ahad, 2019, Ahad, 2020).

15. REJECTION OF BOTH THE NEUTRAL THEORY AND THE NEARLY NEUTRAL THEORY BY EVOLUTIONARY BIOLOGISTS

a) Rejection of neutral theory by evolutionary biologists

World-famous evolutionary biologists rejected the Neutral theory for any kind of evolution. There are numerous pieces of literature but a few are mentioned here:

- i) Accumulated evidences from the past 50 years indicated that selection has played the predominant role in shaping within-and between-species genetic variations. Consequencely, it is believed that the Neutral Theory has been overwhelmingly rejected. So, an alternate theory is necessary to develop about molecular evolution of an organism (Mathew and Jensen, 2015).
- ii) The faithfulness of molecular evolution, which has been argued by the Neutral theory, is to be conflicting with the natural selection. So, this theory is not acceptable (Futuyma, 2003).
- iii) The Neutral theory is supported by unreliable theoretical and empirical evidence from the beginning, and that in light of the modern genome-scale data. Hence, its universality could be firmly rejected. Consequently, the Neutral Theory has been

overwhelmingly rejected by various evolutionary biologists (Kern and Hahn, 2018). iv) The Neutral theory is now largely discarded, since; it does not seem to fit the genetic variations that were experienced in nature (Kreitman, 1996, Leigh, 2007). v) This theory does not consider that (physical and not mathematical) equilibrium conditions generated by mutation and selection are resilient physical systems; genetic drift is powerless to change the equilibrium. Moreover, this theory is confusing to substitution and fixation an allele. Again, to work with the fate of an allele (it is ephemeral, its fate is its extinction) and not with locus dynamics (Valenzuela, 2013). vii) For 50 years, Neutral theory of molecular evolutionary theory emphasized the importance of neutral mutations/genetic drift over adaptive ones in the DNA. But the real genomic data challenge that assumption. So it can be surprising to learn that for half a century, a prevailing view in scholarly circles has been that it's not valid (Callier, 2018).

Finally, it is verified that evolutionary biologists rejected the Neutral theory for any kind of evolution. As it is previously proved that there is no difference between the Nearly Neutral theory and the Neutral theory (i.e. the Neutral theory=the Nearly Neutral theory). So, rejection of the Neutral theory means the rejection of the Nearly Neutral theory also. Hence, the world-renowned molecular biologists rejected both the Neutral theory and the Nearly Neutral theory.

b) Rejection of the nearly neutral theory by evolutionary biologists

Many by evolutionary biologists rejected both the Neutral theory and the Nearly Neutral theory. For example. Valenzuela rejected both the Neutral theory and the Nearly Neutral theory. In his own languages: "The most important conceptual errors in the Neutral theory and the Nearly Neutral theory are that the mutations and the genetic drift could transitorily construct some DNA segments with hermeneutical (meaning sense) value, but those cannot maintain them. Thus, the genetic drift cannot drive evolution. Moreover, Brownian motion cannot construct and maintain anything, except the resilient random Brownian equilibrium that is anti-ethical with life. The second error, which is the base for the first one, was forgetting (or worse, to exclude ideologically as we shall observe) recurrent forward and backward mutations that necessarily occur synchronously with the random genetic drift, making fixation impossible. The third error was not considering that (physical and not mathematical) equilibrium conditions generated by mutation and selection are resilient physical systems, drift (an idea) is powerless to change the equilibrium. The fourth was to confuse substitution and fixation. The fifth error was to work with the fate of an allele (it is ephemeral, its fate is its extinction)

and not with locus dynamics. Lastly he rejected both the two theories (Valenzuela, 2013)."

16. A THEORY/LAW CAN BE INVALIDATED BY FINDING NEW EVIDENCE

A theory/law can be invalidated by finding of new evidences (Starr and Taggart, 1989), any theory might be overturned at any time by new evidences (Castro and Hubner, 1997). Additionally, theories are being modified continually in the light of new evidences (Weisz and Keogh, 1982). But it is experienced from the whole text of this article that the key forces (the genetic drift and the finite/small populations) of the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution. Therefore, the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution, is not a problem of biological sciences. However, in this way it is also proved that Oparin-Haldane's theory is opposite the origin of life (Ahadd, 2011b, Ahad and Ferdous, 2016), Lamarck's theory is opposite to evolution (Ahad, 2011c).

17. CONCLUSION

The discussions of the present article lead to draw the following conclusions: i) Genetic drift means finite populations and *vice-versa*. ii) The Neutral theory=the genetic drift. iii) The Nearly Neutral theory=the genetic drift plus natural selection. iii) Darwin's theory of natural selection is not justified in the Nearly Neutral theory. So, the Neutral theory=the Nearly Neutral theory. iv) Both the Neutral theory and the Nearly Neutral theory are opposite to any kind of evolution. So, plants and animals had not evolved according to those theories.

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