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THE EVOLUTIONARY BIOCHEMICAL THEORY ON SKIN PIGMENTATION IN HOMO SAPIENS

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ABSTRACT

Introduction: Skin pigmentation in Homo sapien has been a grey area which has grown in recent times demanding, a dig deep in order to conclude positively what causes Homo sapien skin pigmentation. The proposed Genetic Theory by Davenport thereon has become controversial and debatable: The aim of this study is to prove or disprove it, and to evolve or develop a new concept or theory thereon skin pigmentation in Homo sapien. **Methods and material:** The past study on DNA,and of Sawhney on skin depigmentation in Homo sapien at tropics have been based upon to study on skin pigmentation in Homo sapien. **Results:** The results of the present study shows that the Davenport Genetic Theory on skin pigmentation in Homo sapien does not fit into the concluded data and analysis thereon. The data clearly show that it is the evolutionary biochemical concept, arrived at on skin pigmentation in Homo sapien,which stands justified, in preference to Davenport Genetic Theory on skin pigmentation in Homo sapien. **Conclusion:** The skin pigmentation in Homo sapien has been concluded as the evolutionary biochemical phenomenon with the centrality of sun at tropics and the epidermal vitamin K threshold, pre- braced up by Nature at pre-natal level in skin organ of Homo sapien.

INTRODUCTION

The adaptability, sustainability and survivability of ecosystems had been the guiding principles, Nature had built upon while evolvingbiostrategies to evolve ecosystems upon earth. The ecosystems had been gene-directing, defined with code(s). Nature evolved 84,000 ecosystems,as defined in Hindu mythology. The Indian sciences had been much more advanced scientifically, technologically and innovatively in the past, and gradually faded away over times to the point of no trace left whatsoever, making spaces for modern sciences which have unravelled the secrets of Nature, defined as code(s). The Homo sapien ecosystem had been probably the last evolution of Nature.

Nature had taken billion of years, evolving the adaptable, sustainable and survivable Homo sapiens through trial and error methods and settled on Homo sapien model as perfect as possible, termed as modern humans. The living experience suggests that the Homo sapien (modern human) is a mixof perfections and imperfections.

The human imperfections outweigh perfections. The skin characteristics of Homo sapiens have been found contrasting to those of other ecosystems. The skin pigmentation in ecosystems with the exception of Homo sapien ecosystem, is completely gene-directing. The Homo sapien pigmentary characteristicsand their tone(s), timing and the evolutionary conceptand theory have been found contrasting, and demanding for its decryption to understand the aetiology of skin pigmentation and resolution of the depigmentation, a postnatal imperfection in Homo sapiens particularly at tropics. Biochemical imperfections caused by dietary imbalanceetc. can be met positively biochemically, whereas the genetic imperfections since birth remain untreatable. The Homo sapiens are born with skin tone as the constitutive light- toned integumental coat at peri-natal level to be pigmented at perinatal or post-natal level under the strategic principle of Nature- a fact which remained coded, whereas all other ecosystems saw the light of the world with the specific skin pigmentation- a skin buffer against the damaging effects of relent-less sun high intensity UVB. The Homo sapiens had been epidermally pigmented under the defined Natural laws at the peri-natal or post-natal level.

At pre-natal level, the Homo sapienhad been defined assuming constitutive light-toned integument coat sans the defined pigmentation unlike other ecosystems, which had been defined genetically to assume the defined skin pigmentation at pre- natal level. The ecosystems, with

the exception of Homo sapien ecosystem, defined with constitutive light- toned integumental coat, had been defined genetically with the defined skin colour at pre-natal level and are born with the skin pigmentation unlike Homo sapien.

The scientific activities concerned with the unravelling of secrets of Nature and decoding of the code(s) of Nature have interested the scientists worldover to meet the challenges of human imperfections-the area(s) of interests and investments today. Sawhney[1-4] found the skin pigment melanin as misnomer and recoined it as melanolipoprotein in 1994; reported on genesis on cutaneous depigmentation in 1996; studied aetiology and treatment of epidermal depigmentary disorder in humans in 2012; and in 2020 cracked Homo sapienpigmentatary order, aetiology of skin depigmentatary disorder and its attendant skin cancer and their rehabilitation with naphthoquinone Therapy. Mofty[5] rehabilitated the Homo sapien skin depigmentation with psoralens in 1953.

The skin pigmentation by Nature to all ecosystems had been provided to buffer them, in order to ensure the defined bioages of ecosystems upon earth planet. The routes to the provision of Homo sapien skin pigmentation in contrast to other ecosystems had been found contrasting. The author's living experience on the ecosystems including Homo sapiens and their skin pigmentation has been varying and revealing.

The Homo sapien skin pigmentation subject is a grey area and has grown demanding adiscussion thereon. This controversy opened new window to the author to go deeper and deeper to put to rest the skin pigmentary controversy and to explore the scientific resolution of this pigmentary puzzle. So this study.

MATERIALS AND METHODS

The whole study on the development of the Evolutionary Biochemical Homo sapien skin pigmentary Theory, in preference to the known Genetic Theory on by Davenport skin pigmentation in Homo sapien, has been based upon the data on DNA, its structure and flexibility etc, and Sawhney[4]'s and Mofty[5]'s data on Homo sapien skin depigmentation and its rehabhtation, and the former's data on its aetiology and central and seminal factors thereon, for its renormalization, and Hindu mythology on ecosystems.

RESULT

The accompanying data drawn from different sources had been found much relevant, useful and revealing in regard to validation or invalidation of Davenport Genetic Theory on skin pigmentation in Homo sapiens and the evolution of new Theory: The Evolutionary Biochemical Homo sapien skin pigmentary theory:

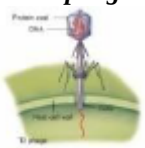
Since the proposal in 1913 on Genetic Theory by Davenport[6] on skin pigmentation in ecosystems including Homo sapienecosystem, the scientists and commonman kept on believing in this Genetic Theory thereafter till to-day, but in recent times, with the scientific advancements, the Davenport genetic theory on skin pigmentation in Homo sapien had become debatable and controversial.

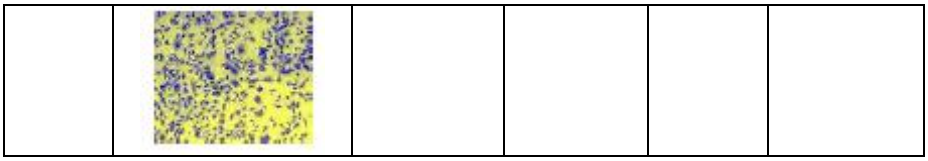
Hindu mythology, which had suggested on the evolution of the number of ecosystems as 84,00,000 including Homo sapien; DNAs of ecosystems, their helical structure defined with constant physical characteristics, and the flexible sequential but varying order of paired bases in DNA pitch in respective ecosystem; the Homo sapien ecosystem DNA had the specific order: G-C, T-A, C-G and A-T which behaved differently at defining contitutive light- toned inegumental coats genetically at pre-natal level whereas the other 83,99,999 ecosystems with varying order of paired bases with and without their varying quantities of nitrogenous bases G, A, T had been evolved genetically with skin pigmentation at pre-natal level with the effective application of Chargaff"s rules[7];Mofty[5] data on rehablitation of skin depigmentary disorder in Homo sapien with psoralen;, Sawhney[4] data on Homo sapien skin pigmentary order and skin depigmentary disorder and rehablitation of the latter disorder with naphthoquinone therapy; the living and practical experience of the author on the evolution of Homo sapiens at tropics and other ecosystems at tropics and beyond, had been invoked to invalidate Devanport genetic theory on skin pigmentation in Homo sapienat pre- natal level, and validate the proposed: The Evolutionary Biochemical Theory on Skin Pigmentation in Homo sapien at Peri- natal or post- natal level.

The author had practically observed that Homo sapien births with the genetically defined pre- natal Homo sapien with constitutive light-toned integumental coat at peri-natal level whereas the other ecosystems (83,99,999) evolved geneticallywith the defined skin pigmentary volumesat pre-natal level, saw the light of day at peri-natal level with the same skin characteristics. It means that all the ecosystems, with the exception of Homo sapien sans skin pigmentation at pre-natal level, could adapt to the earthly environmental conditions including relentless sun high intensity UVB. As corollary Nature could have failed to send Homo sapiens upon earth with the genetically evolved constitutive light-toned integumental coats sans skin buffer, and strategisedto look after another option at post-natal level. Sawhney [4] demonstrated the pigmentation over and above the genetically developed constitutive light- toned integumental coat with two determinants: vitamin K or like compounds with vitamin K like behavior and relentless sun high intensity UVB, invalidating the Devanportgenetic theory on skin pigmentation in Homo sapien at peri-natal level, and safely proposed The Evolutionary Biochemical Theory on skin pigmentation in Homo sapiens- the concept opposed to what Davenport proposed skin pigmentation in Homo sapien.

The data on DNA driven sets A+T/G+C, A+G/T+C,AT/GC and A+T/G+C using Chargaft and Davison values[8] of A,T,G,C, have been calculated and tabulated in Table1, from which it had been found the first three sets could not reveal any specific order. The fourth set: A+T/G+C showed that Home sapien DNA had the highest value: 52.18 followed by *Sea Urchin* (51.92),*Chickin* (51.72), *Grasshoper* (51.43), *Salmon* (51.40), *E.coli* (51.30), *Mycobacterium tuberculosis* (51.01), *Bateriophage* T_2 (51.00) and *Diplococcus pneumonia* (49.34) etc.

Table 1: DNA Driven Data on Some Ecosystems Including Homo sapien Ecosystem.

Sl. No.	Ecosystems	A+T/ G+C	A+G/T+C	AT/GC	A+T/G+C
1	***Homo sapien*** 	*1.50*	*1.03*	*2.33*	*52.18*
2	***Sea Urchin*** 	*1.57*	*1.02*	*2.47*	*51.92*
3	***Chicken*** 	*1.62*	*0.97*	*1.91*	*51.72*
4	***Grasshoper*** 	*1.40*	*0.98*	*2.00*	*51.43*
5	***Solmon*** 	*1.43*	*1.22*	*1.80*	*51.40*
6	***E. coli*** 	*0.94*	*1.03*	*0.92*	*51.30*
7	***Mycobacterium tuberculosis*** 	*0.59*	*1.10*	*0.18*	*51.01*
8	***Bacteriophage T2*** 	*1.86*	*1.03*	*3.48*	*51.00*
9	***Diplococcus pneumonia***	***1.86***	***1.01***	***2.55***	*49.34*



The DNA data, that is, A+G/T+C base ratio which varies from species to species, and the specific order of paired bases in Homo sapien DNA pitch: G-C, T-A, C-G and A-T, had suggested that given the Homo sapien specificity under the principles of Nature and with genetically evolved pre-natal constitutive light-toned integumental coat (white tone), it is safe to suggest that the Homo sapien should be to the left end of the genetically defined skin pigmentary spectrum (Fig 1).

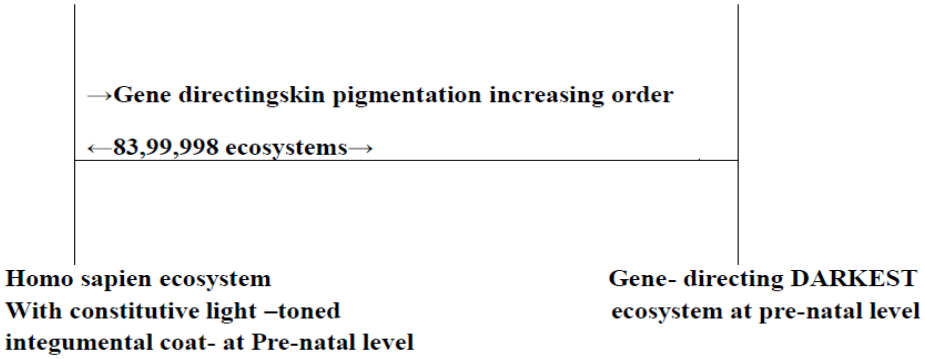


Fig. 2: Gene directing skin pigmentation in ecosystem (83, 99, 999) with Homo sapienhaving no gene directing skin pigmentation at pre-natal level.

However Devanport Genetic Theory may fit well in ecosystems (83,99,999) with the exception of Homo sapien ecosystem to which the proposed The Evolutionary Biochemical Theory on the Skin Pigmentation has been found true and validated.

DISCUSSION

The subject in reference has been dealt with eclectically to conclude on the study under consideration. The scientists[9-12] have dug deep into the study of DNA, its structure etc. The resolution of the skin pigmentation of the ecosystems including Homo sapien ecosystem appears to be hidden in their DNAs and their pitch composition and helical structure(s) and order of base pairs in DNA pitch. DNA, a complex macromolecular compound, composed of four monomers called deoxynucleotides, each of which is made up of three moieties : phosphate, 2 deoxyribose and pyrimidine and purine nitrogenous bases: Adenine (A), Guanine (G), Cytosine (C), and Thymine (T).In 1953 Watson and Crick[10] proposed that two polynucleotide- chain in the double helix associate by hydrogen bonding between nitrogenous bases: G can bond specifically with C by three hydrogen bonds, and A can specifically bondT by two hydrogen bonds. These reactions are described as base pairing, and paired bases (G&C, A&T) are said to be complementary. Chargraff[7] formulated important generalisations about DNA structure, called as Chargraff's rules : A-T base pairs equal to G-C base pairs., A+G=T+C., A=T&G=C(in amount).,A+T/G+C., and equal proportion of deoxyribose and phosphate DNA characteristics include two external groomes: minor groove($12A^0$ across) and major groove (22 A^0 across).,pitch or per helical turn: $34A^o$.,internucleotide distance: $3.4A^o$.,diameter of helical structure: 20A., pitch (one round)=$34A^o$., each base pair rotation: 36^o around; nucleotides per helical turn=10

The practical experience of the author points out that the Homo sapien evolution and development of Homo sapien with constitutive light- toned integumental coat at the pre-natal level as compared to the off-springs of the other ecosystems with the defined skin pigmentation varying in line with the defined DNA of individual ecosystem had been noticed

The exchange of G-C and A-T in the pitch of DNA, had resulted in evolution of Monkey with defined skin pigmentation at pre-natal level or peri-natal level. Nature could have developed, with defined skin pigmentation at pre/ peri-natal level, the different ecosystems upon earth, suggesting that the Homo sapien pigmentation can not be gene-directing as theorised by Davenport. Davenport further stated that the true Nigro has four dominant AABB genes whereas a white has four recessivegenes, aabb. The F1offsprings of mating of aabband AABB are AaBb and have an intermediate skin colour termed as mulatto. A mating of two mulattoes produce a vide variety of skin colour in the offsprings, ranging as dark asthe original Nigro parent and as white as original white parent. These results clearly show that A&B genes produce about the same amount of darkening of skin and therefore the increase or decrease of A&B genes cause variable phenotypes in F2 in the ratio of one Nigro: 6intermediate: 4 light: 1 white.

The author's practical experience had been quite contrasting. Eurasian couple (white father and black mother and vice-versa) and white couple evolved genetically, at pre-natal level, the constitutive light-toned integumental coat which gets gradually pigmented when exposed to relentless sun high-intensity UVB at tropics whereas the offspring of white couple at peri- natal remains unpigmented when exposed to relenting sun weak intensity UVB at beyond tropics. The chances of the offspring of white couple, developing gradually the skin pigmentation if exposed to relentless sun high intensity UVB at tropics cannot be ruled out. These practical observations of the author clearly nagate the Genetic Theory of Davenport on the gene-directing Homo sapien skin pigmentation. Secondly the author practically observed the development of skin pigmentation of all the off-springs of Eurasian couples at peri-natal level when exposed to relentless sun high intensity UVB. This repeat also has been observed from thegeneration to generation by the author as opposed to what Davenport's Genetic Theory says about Homo sapiens skin pigmentation.

The first generation and second generation had constitutive light-toned integumental coat at peri-natal stage which assumed skin pigmentation over and above itself as a continuum under the influence of high intensity UVB of sun at trophics, showing no match whatsoever with theconcept of Davenport on the heredity in skin colour in Negro White crosses. Lineages of Eurasian couple (white Male and black Female) are briefed in Fig 2.

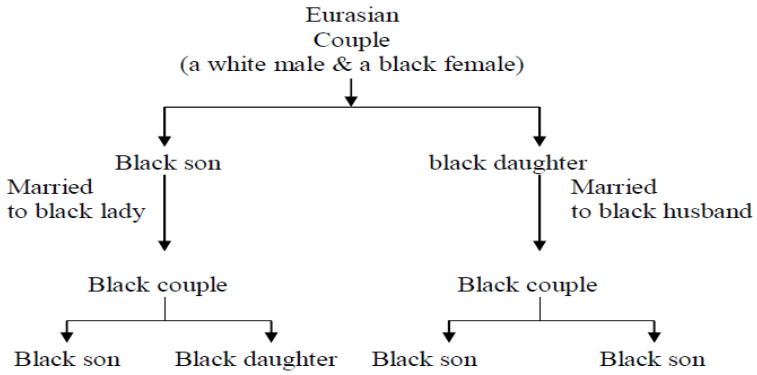


Fig. 2: Lineages of eurasian couple.

Details – The follow up programme of the author – of lineages of Eurasian couple had beenfound contrasting to the proposed linages of the Negro and white crosses, as proposed by Davenport, and negate the Genetic Theory on skin pigmentation in Homo sapiens.

DNA study on its structure has been revealing. Given the constant and unchangeable phosphate-sugar backbones, Nature could evolve and develop the ecosystems with the permutation and combination of the nitrogenous basis: A,T,G and C, positioned inbetweenthe phosphate-sugar backbones. The Homo sapien DNA with specific order of base pair: G-C, T-A, C-G and A-T had been characteristically contrasting to other DNAs of other ecosystems. Chargaff [7] formulated important generalization as said early in regard to nitrogenous bases and base pairs in regard to skin pigmentation of ecosystems genetically. The Chargaff's rules had been found applicable on all DNAs of the ecosystems evolved by Nature, but the Homo sapien skin pigmentation characteristic appears to an exception. Accordingly to Chargaff, each ecosystem had constant ratio of A+T/G+C. It means that this ratio varies from species to species at pre-natal level (Table -1). As a corollary Nature could spare Homo sapien, and treat it with an exception as compared to other species as it (Homo sapien) is characteristically quite different to those of other ecosystems.

Incarnations, known to the different faiths in the world had come upon earth as Homo sapiens with defined constitutive light-toned integumental coat at pre-natal level and had birthed with the same pre-natal level skin tone at peri- natal level and evolved and developed skin pigmentation at post-natal level in line with what Sawhney[4] had concluded in his study : the sun directing Homo sapien skin pigmentation at post – natal level, and published in World Journal of Pharmaceutical and life science in 2020. White Europeans at beyond tropics had been noticed as the resultant of relenting sun weak intensity UVB, to which they had been constantly exposed at beyond trophics, Hindu mythology refers to 84,00,000 ecosystems including Homo sapien- probably the last addition in the ecosystems defined by Nature. The structural analysis of DNA show that Nature based upon simple permutation and combinationof paired bases and variation of the length of each of the nitrogenous bases in pair bases, in evolving and developing the 84,00,000 ecosystems, given the constant phosphate sugar backbones holding the hydrogen bonded paired bases: G-C, T-A. C-G and A-T. From the examinations of the characteristics of ecosystems, it has been found quite clearly that Homo sapien ecosystem had been evolved, through trial and errormethods with the specific characters, denied to 83,99,999 ecosystems under the

laws of Nature. The 83,99,999 ecosystems had been completely gene directing whereas Homo sapien ecosystem had been gene- directing too with the exception of skin pigmentationevolution . Further Homo sapien had been ultimately evolved with the specific order of paired bases: G-C T-A, C-G and A-T. The simple exchange of first and last paired bases resulted in the evolution of Monkey.

Nature, doing permutation and combination of paired bases in the DNA's pitch , and the variation of quantities of amounts of nitrogenous bases, A,T,G,C, in the pitch of paired bases, being held inbetween two phosphate sugar backbones, which had been constant and inflexible, could have evolved and developed 84,00,000 ecosystems, genetically, including Homo sapiens but the constitutive light-toned integumental coat which had been contrasting to the other ecosystems numbering 83,99,999 defined with the gene-directing skin pigmentation in line with a Chargaff's rule: A+G/T+C which varies from species to species, which clearly, had been suggestive of the pigmentary spectrum spread over two limits; white skin of Homo sapien ecosystem and another black ecosystem of the spectrum Fig1.

Davenport Genetic Theory may fit well into 83, 99,999 ecosystems, with the exception of Homo sapien ecosystem where skin pigmentation by the genes in Homo sapiens at pre-natal level could be ruled out quite safely. Secondly the gene- directing Homo sapien child gets birth atperi-natal level with constitutive light- toned integumental coat, after which the child gets pigmented at post- natal levelon sun exposure,ruling out the validation of Davenport Genetic Theory on Homo sapien skin pigmentation at pre- natal level.

Mofty[5] applied psoralens sourced from Ammi majud L to pigment the depigmented skin of the dark Asian, African, Arabian and Australian etc at trophics at post natal level without understanding what causes the skin depigmentation among Homo sapiens at tropics. Sawhney[4] published the data on the renormalization of the skin depigmentationamong the dark Homo sapiensat trophics, applying root extracts of Plumbago zeylanica L which contained 1% plumbagin, in the World Journal of Pharmaceuticaland Life Sciences (WJPLS) in 2020. Sawhney[4] also concluded on eight determinants including epidermal vitamin K and relentless sun high intensity UVB at tropics . for the skin pigmentation over and above the constitutive light-toned integumental coat developed at pre-natal level, when the pre- braced up epidermal vitamin K under laws of Nature at pre-natal level and relentless sun high intensity UVB phosoreacted at peri-natal level, resulting in the development of skin pigmentation over and above the pre-determined constitutive light –toned integumental coat,concluding on the centrality and seminality of two factors: vitamin K and relentless sun high intensity UVB for skin pigmentation in Homo sapiens at peri-natal level. As a corollary, the skin pigmentation in Homo sapien is a biochemical phenomenon, and not the genetic one as proposed by Davenport in 1953.

In conclusion Davenport Genetic Theory on skin pigmentation in Homo sapien stands invalidated, and The Evolutionary BiochemicalTheory on skin pigmentation in Homo sapien at peri-natal stands validated.

CONCLUSION

The negation of Davenport Genetic Theory in regard to skin pigmentation of Homo sapien has been concluded. Homo sapien pigmentation programme of Nature had been governed by the Evolutionary Biochemical Theory on skin Pigmentations in Homo sapiens, involving simple biochemicals (tyrosine, tyrosinase, vitamin k , oxygen etc.) and relentless sun high intensity UVB at trophics, with no role of genes whatsoever as claimed by Davenport.

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