Utilization of Natural Fibers For Manufacturing of Concrete Blocks: Review Paper

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Abstract- *In Today technological world, eco-friendly materials play vital role to discover new type of construction materials. In particular, if the material serves for the purpose of environment in the form absorption of certain toxic gases, it definitely opens up the construction market. In order to improve the properties like durability,and mechanical properties natural fibers were added to the concrete in different forms. On the other hand, the advantages of fiber-reinforced concrete shows improved ductility, versatility, and durability in the form of matrix between concrete and fiber. Kenaf fibers are upcoming and promising materials in the field of concrete, where in considerable strength can be achieved. This paper reviews the application of kenaf fibers, their properties and their diverse application areas. This insight will give the researchers about the overall scenario on utilisation of kenaf fibers in the field of construction materials.*

Keywords- kenaf (Hibiscus cannabinus L.), kenaf fiber, Mechanical properties, RC Structure, Strengthening of concrete.

I. INTRODUCTION

In the construction industry concrete is one of the mainly used material. In building construction, it consists of a hard, chemically inert particulate substance, known as an aggregate that is bonded together by cement and water. Plain concrete is generally weak and brittle in tension compared to its capacity in compression. It hardens with age and the process of hardening continues for a long time after the concrete has attained sufficient strength. It is the property of cement concrete which gives it a distinct place among the building materials. It is proved to be more economical than steel. The formwork which is of steel or timber, can be used over and over again or for other purposes after it is removed. Fiber reinforced concrete is a practical mean developed for a better control of the tensile performance as well as the tensile post-cracking and post-yield behaviours of concrete. There have been numerous studies focusing on lightweight foamed concrete with various types of additions and replacements to enhance its durability and mechanical properties. Adeyemi Olutogeetal.(1) investigated The Strength Analysis of Corn Ash and Kenaf Fiber Composites. The use of imported building materials like roofing sheets are becoming unaffordable by the populace, diverse natural materials used for building construction by man are found to be cost effective .The workability of Kenaf fiber inclusion in OPC partially replaced with CCA blended concrete mixture depends highly on the interaction between the Kenaf fibers (Percentage and sizes), the percentage mass and fineness of the ash, crushed stone dust and cement. H.M. Akil,M.F. Omar (2) statesthat Kenaf fiber Reinforced composites. The author concludes that the research on the Kenaf fiber reinforced composites is generating increased attention due to its excellent properties and ecological consideration. However more crucial studies are required on product commercialization and manufacturing Festusprocess, especially for large scale end products. A. Elsaid, M. Dawood (3) Mechanical properties of Kenaf Fiber Reinforced Concrete. It states that the Kenaf Plant absorbs approximately 1.5 times its weight in carbon dioxide which represents the highest level of absorption of all the plants. The use of cementitious mineral admixtures to offset the increased cement demand and include a comprehensive life-cycle assessment. N. Zainietal. (4) states the Kenaf Core as CO_2 Adsorbent Study reveals that the cleaning by using distilled water at room temperature is the most efficient way as compared to other methods. It also found that 5 min is the sufficient adsorption time for CO_2 adsorption process in PSA Column.MohdSuhairilMeon (5)investigates aboutimproving tensile properties of Kenaf fibers treated with sodium hydroxide. The alkalization treatment has improved the tensile properties of the short kenaf fibers significantly as compared to untreated short kenaf fibers. S M Syed Mohsin A O Baarimah (6)states the Effect of Kenaf fiber in Reinforced concrete slab. It describes about the use of a chemical such as sodium hydroxide (NAOH) to reduce the hydrophobic characteristic of the fiber, thus enhancing the adhesion between the fiber surface and the matrix. This was done by removing the hydroxyl group in cellulose and increasing the surface roughness which resulted in the improvement of the tensile properties of Kenaf fiber as compared to untreated Kenaf fibers. Butta M.A.R, Nur Hafizah (7) this paper concludes the Kenaf composites had the highest ultimate tensile strength compared to Kenaf composites and ester

composites and all composites strength gradually increased when the fiber volume fraction volume fraction increased. Tian Fook Lam (8) States about the use of kenaf fibers in concrete would reduce the amount of carbon dioxide in atmosphere. It was found that the different strength between the short fiber KFRC and long fiber KFRC are around 6 to 14 percent. Zakaria chemudaetal. (9) describes about the impact resistance performance of Kenaf fiber reinforced concrete. The impact resistance of materials can also be measured by the criteria such as the energy of fracture of specimen. The result indicates that volume fraction of bamboo fibers has an optimal performance in the first crack resistance. Noor Ma Sadiqu Assan etal. (10) investigates of an experimental research that was conducted to study the effect of natural Kenaf fiber on concrete production which implements in the sustainable construction industry as a low-cost material. The study reveals that increment of kenaf fiber contents in the mixture decrease the workability of concrete and this is due to the water absorption characteristic of Kenaf fiber**.** MohdSuhairilMeonetal. (11)describes about the improving tensile properties of Kenaf fibers treated with sodium hydroxide**.** The research is about Kenaf plastic composites. This is growing tremendously along with the plastic industry and several treatments have been proposed and used to improve the inter-laminar bonding**.** The alkalization treatment has improved the tensile properties of short kenaf fiber as compared to untreated short Kenaffiber. Felix F. Udoeyoetal. (11)describes about the characteristic of Kenaf fiber-reinforced mortar composites. It states about the behavior of mortar sheet reinforced with Kenaf fiber. The focus of this paper will help immeasurably to reduce the environmental burden on the limited landfills facilities. During testing it was observed that the failure of Kenaf fiber -reinforced mortar sheets was slow and gradual when compared to the sudden failure of plain sheets. C.Terzaraetal. (12)states about the factors that affect the mechanical properties of kenaf fiber reinforced Polymer. The study of hybrid Kenaf fiber for both structural and non-structural application could increase the manufacturing of products using green technology. This hopefully provide a literature source for the development of Kenaf fiber composite. H. Awang (13) describes about the Influence of Kenaf and Polypropylene fibers on mechanical and durability properties of fiber Reinforced Lightweight foamed concrete. This study is about the effect of both synthetic and natural fiber when included as an additive on the properties of foamed concrete. It concludes that the fiber inclusion decreases workability, demanding more water to achieve the required slump. S M Syed Mohsin (14)describes about the effect of Kenaf fiber in reinforced concrete slab. This was done by removing the hydroxyl group in cellulose and increasing the surface roughness which resulted in the improvement of the tensile properties of Kenaf fiber as compared to untreated kenaf fiber**.** Rasheed Abed Hammood (15)describes about the study on the performance of Kenaf fiber to strengthening of reinforced concrete beams. Kenaf fiber an important plant receives much attention due to certain attributes such as low in cost and density and its biodegradability feature. The findings of this paper indicate that KFRC is a promising green construction material which could be potentially used in a concrete structure. Nur Fikriah Hashim etal. (16)describes about the strength and durability of Kenaf fiber reinforced concrete for marine structures. The manufacturing defect and tensile properties of Kenaf reinforced concrete was observed. It is technically capable of replacing the current materials used for marine construction. Fiber reinforced concrete may decrease due to weak interfacial adhesion between fiber and matrix**.** V.R. Raman etal. (17)A review is taken about Kenaf fiber reinforced composites. The composite material is playing a vital role in automotive and construction industries and the review on their processing techniques, properties, and their application are important. Seong Ok Han etal. (18) states about the understanding the reinforcing mechanism in Kenaf fiber/PLA and kenaf Fiber/PP composites. A comparative study between two different fibers has been described PLA based composites have successfully been made and characterized using various reinforcements including natural fiber. PP is an inert non polar polymer with no functional groups. It concludes that PP is one of the most commonly used thermoplastics in engineering applications. YounoussaMillogo (19)states about how properties of Kenaf fiber from Burkina Faso contribute to the reinforcement of earth blocks. The aim of this study is about the influence of the physicochemical and mechanical characteristics of Kenaf fibers from Burkina Faso on the mechanical behaviour of adobes reinforced with these fibers. The incorporation of fibers particularly beneficial as far as the bending strength of earth blocks is concerned. N. Saba (20)deals with the mechanical properties of Kenaf fiber reinforced polymer composite. This paper concludes that by reporting fiber loading give better mechanical properties but 40% fiber loading considered as optimum condition in polymer composites which gives better mechanical properties. SuhadD.Salmanetal. (21)describes about the Kenaf/synthetic and Kevlar/Cellulosic fiber reinforced hybrid composites. It is stated that there is a high potential for the use of hybridization of Kenaf/cellulosic fiber reinforced composites to form hybrid composites with extensive potential applications in many industrial fields.A. Shalwanetal. (22) describes about the effect of aging process in different solutions on Kenaf fiber structure and its interfacial adhesion in Epoxy composites. Treating the fiber with 6%naoh significantly improved the interfacial adhesion of the fibers with the matrix. Environmental effect should be considered with a factor depending on the nature of the environment.Omoniyi Tope

Moses (23) investigates about the compressive strength characteristics of Kenaf fiber reinforced cement mortar**,** this is no statistically significant difference in the compressive mortar containing 1-3% of volume with 10mm length. Mohammad Hajmohammadian Baghbanetal., (24)Natural kenaf fiber and LC^3 binder for sustainable fiber reinforced cementitious composite. Limestone calcined clay cement is a promising blinder in the concrete sector for its improvements to environmental impact, durability, and mechanical properties. Thus, using natural fiber instead of synthetic fibers can be another step toward the sustainability of the concrete industry. The review studies the potential of natural kenaf fiber concrete containing LC^3 binder as a step toward green cementitious composite.Natural fiber volume content under 1% and fiber length of about 50mm are reported to be a proper performance in the concrete mix. Energy consumption due to the replacement of cement by LC^3 as well as significant properties of kenaf plant in absorbing the CO_2 from the air and introducing proper fibers for concrete mix.

II. FIBER REINFORCED CONCRETE

Fiber reinforced concrete is concrete containing fibrous material which increase its structural integrity. Continues meshes, woven fabrics and long wires or rods are not considered to be discrete fibers. Fibers include in the steel fibers, glass fibers, synthetic fibers and natural fibers are each lend varying properties to the concrete. A small piece of reinforcing material possessing certain characteristics properties. The fiber is described by a convenient parameter called aspect ratio. The aspect ratio of its length to its diameter. If containing fibrous which increases its structural integrity and short discrete fibers that are uniformly distributed and randomly oriented. Within these different fibers that character of fiber reinforced concrete changes with varying concrete. Fiber reinforcement is mainly used in shotcrete, but can also be used in normal concrete. Fiber reinforced is mainly used for on ground floors and pavements.

III. KENAF FIBER REINFORCED CONCRETE

Kenaf fiber received much attention due to its low cost, low density and its biodegradability feature. It is one of the natural fibres used as a reinforcement in polymer matrix composites (PMC). Kenaf, known as Hibiscus cannabinus L, is an herbaceous annual plant that grows in a wide range of weather conditions, growing more than 3 m within 3 months. The highest growth rate may up to 10 cm/day.The utilization of natural fibres, such as kenaf fibre, in the polymer matrix composites has, in fact, received much attention due to certain attributes, such as low in cost and density, as well as its biodegradability feature. It is also technically capable of replacing the current materials used for marine construction. The Project had indicated the mechanical properties of the concrete composite were comparable to plain concrete specimen. The concrete composite has showed even distributed cracking and higher toughness. Therefore, the concrete composite is claimed to be potential material for construction application. Kenaf fibre reinforced polymer composite are highlighted to provide a source of literature for further researches concerning the use of kenaf fibre polymer composites on various applications. Kenaf has potential reinforced fiber in thermosets and thermoplastics composites.

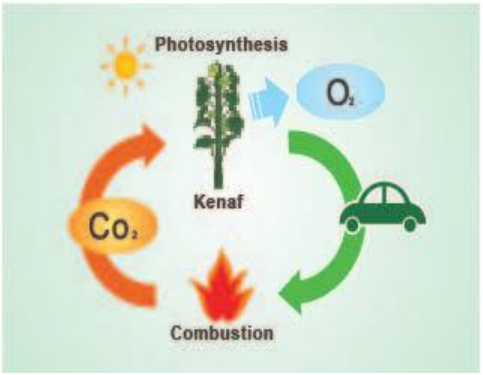

Fig 1. Kenaf Fiber

Kenaf fiber is one of the famous natural fibers used as a reinforcement in polymer matrix composites (PMC). However, the difference of growth parameter influencing the properties of kenaf fiber such as length of growth season, plant

population, cultivar, planting date, photosensitivity, and plant maturity. The stem of the kenaf plant is straight and is not branched along the stem. It is built up by bark and a core. Therefore, it is easy to separate the stem by either chemicals or enzymatic retting. The bark has contributed 30%–40% of the dry weight for the stem while the wood-like core makes up the remaining weight. Long bast fiber type was used to make composite boards, textiles, pulp, and paper industry. Kenaf plant absorbs the nitrogen and phosphorus in the soil. These minerals were helped to increase the cumulative weed weight, crop height, stem diameter, and fiber yield. Some scientists suggested that the nitrogen application at 90 kgN/ha has a significant effect for kenaf plant growing. Another attracting reason is the high photosynthesis ability of kenaf. The triple of photosynthesis rate of kenaf (23.4 mg CO_2/dm2/h) compared to conventional tress (of 8.7 mg CO_2/dm2/h) under 1000 µm mol/cm2/s helped to reduce the carbon dioxide while producing oxygen. The bast kenaf fiber has better strength properties than core fiber; hence it is more suitable for high strength applications. A study has used the kenaf bast fiber to reinforce in the concrete composite to compare its properties with the plain concrete. The results had indicated the mechanical properties of the concrete composite were comparable to plain concrete specimen. Furthermore, the concrete composite has showed even distributed cracking and higher toughness. Therefore, the concrete composite is claimed to be potential material for construction application.

IV. PROPERTIES OF KENAF FIBER

Table 4.1 Properties of Kenaf Fiber

PROPERTIES	UNIT	KENAF FIBER
Tensile strength	MPa	35-600
Elastic modulus	MPa	40,000
Elongation at break	%	2.5-3.5
Flexural strength	MPa	N/A
Flexural modulus	MPa	N/A
Density	Kg/m³	1500

4.1.1 Physical Properties

Stem principally comprises the two types of materials.They long fiber and the short, woody-like fiber, kenaf stem are present at the innermost part. That the bast to core ratio for the almost 30:70 (w/w). That the fibers are different considerably for anatomical structure, appearance and fiber. Its superiority is the relevant of characteristics are like capability of up to taking humidity, no allergic,good air permeability, harmful substance effects and biodegradability. Transverse sections of the kenaf cell are wall fibers, four different layers are hollow tube of the cell wall and One are the primary cell wall, lumen are opens in the microfibril are middle, three secondary cell walls. The microfibril of the size, and extractive percent,chemical content of kenaf stem. Kenaf core fiber are the exhibited countless with variability in size, shape, and structure of the cell of wall fibers are core fiber. They transverse sections of the kenaf bast fibers. That cell wall fibers are the polygonal on round for the shape. Lumen diameter is 6.7 and 2.8 µmfor the kenaf core and bast fibers. They showed by the kenaf core for a potential fiber for paper industries and pulp, they another fiber are substituting for the wood and many other natural fiber with a raw material. If average bast fibers length for is 2.5 mm, comparable to another fiber an different species for the core length and the southern pine is 0.5 mm for that resembling hardwoods. It can composition provides for a required balance for thepaper applications and several other pulp, research and development in the industries, stimulating constant attention.

Table 4.2 Microfibril size, extractive percent and chemical content of kenaf fiber stem

NONWOOD FIBERS	STYLE1 BARK	STYLE4 CORE	KENAF WHOLE	SOFTWOOD	HARDWOOD
Fibril length, L(mm)	2.22	0.75	1.29	-	-
Fibril width, W(µm)	17.34	19.23	22.1	-	-
L/W	128	39	-	-	-
Lumen diameter (µm)	7.5	32	12.7	-	-
Cell wall thickness (µm)	3.6	1.5	4.3	-	-
Extractive (%)	5.5	4.7	6.4	0.2-8.5	0.1-7.7
Cellulose (%)	69.2	32.1	53.8	30-60	31-64
Lignin (%)	2.8	25.21	21.2	21-37	14-34
Hemicellulose (%)	27.2	41	87.7	60-80	71-89
Ash content (%)	0.8	1.8	4.0	1	1

4.1.2 Mechanical Properties

They properties of natural fiber its governed by conditions,extremely variable and situations of growth. The quite of challenging get to the similar on mechanical properties for even after the repeat mode testing. If can during mechanical properties such as the tensile strength and modulus are correlated for,they composition and internal structure of the fibers. Natural fiber properties is influenced onthe crystalline association or organization and cellulose determine is the mechanical properties. Researcher can also findit the Young's modulus and tensile strength of the plant fiber rised on increase cellulose content of the fiber.Its to be comparison of the various physical and mechanical properties of syntheticand natural fiber. Moreover, like to be the other natural fibers are kenaf fibers have to specific modulus, poorer thermal resistance and are the cheaper as the compared to on synthetic fibers. Kenaf bast fiber it has been considerably for higher flexural strength mutually associated with its outstanding tensile strength, molded and nonwoven for products is making for perfect material is a variety of collection an extruded. The hard and tough enough the

probable reinforcement fiber in a polymer composite. Concluded with the kenaf fiber it's a strong interfacial adhesion with polymers. They all properties to make of the kenaf fibers are superior over the other natural fibers. If they research are show that the alkalizing of the kenaf fiber are naturally improved for an impact strength, flexural strength, strength modulus, flexural modulus and for a polymeric composite. Chemical treatment for a through silane, acetic anhydride and maleic anhydride as also for shows the improvement a property of fiber are such as dimensional of instability.

Table 4.3 Comparison of mechanical and physical properties of natural fibers versus synthetic fibers.

Fiber	Density (g/cm^3)	Tensile strength (Mpa)	Young's modulus (Gpa)	Elongation at break (%)	Length (mm)	Diameter (µm)
Bamboo	0.6-1.1	140-800	11-32	2.5-3.7	1.5-4	25-40
Jute	1.3-1.49	320-800	8-78	1.5-1.8	1.5-200	20-200
Kenaf	1.4	223-930	14.5-53	1.5-2.7	-	-
Flax	1.4-1.5	345-2000	27.6-103	1.2-3.3	5-900	12-600
Sisal	1.33-1.5	363-700	9-38	2.0-7.0	900	8-200
Hemp	1.4-1.5	270-900	23.5-90	1.0-3.5	5-55	25-500
Coir	1.15-1.46	95-230	2.8-6	15-51.4	20-150	10-460
Ramie	1.0-1.55	400-1000	24.5-128	1.2-4.0	900-1200	20-80
Abaca	1.5	400-980	6.2-20	1-10	-	-
Cotton	1.5-1.6	287-800	5.5-12.6	3.0-10.0	10-60	10-45
Bagasse	1.25	222-290	17-27.1	1.1	10-300	10-34
E-glass	2.5-2.59	2000-3500	70	2.5	-	-
Aramid	1.4	3000-3150	63-67	3.3-3.7	-	-
Carbon	1.4	4000	230-240	1.4-1.8	-	-

V. APPLICATION OF KENAF FIBER

Uses of Kenaf and Kenaf Products are standard news print containing between 90% and 100% chemi-thermo-mechanical pulp. Various types of writing and printing containing KTMP and fine coated paper from mixtures containing KTMP. If they sulphate pulp from the whole kenaf stem and from separate fibres. Mouldable fire mattresses for industrial uses from kenaf fibre. Compressed insulating panels and Decorative wall panels. Linings in compressed fibre for doors and other decorative applications. Animal litter, Horticulture and flower growing products. Cleaning up of liquid leakages from plants in industrial areas and Cleaning of industrial flooring. Consider about the filtering products.

5.1 Construction and Housing Industry

Wood and wood-based for the products can be replaced by the kenaf/plastic compounds are molded into the lightweight panels in several for the applications. They first and economically priced for the plastic of lumber for use as aconstructing material in housing industry as an engineered material. It is also used to make at the lightweight, strong, cement block with aneffective fireproofand great insulation properties. Kenaf core blocks are made with nowadays used to a construct multi-storey and deprived of power tools, solitary family homes.

Fig 2. Kenaf fiber for industries

5.2 Medical Application

Kenaf from the historic times is a recommended for the customary to folk medicine in India and Africa countries. Kenaf consists with a several active components for including alkaloids, polyphenolics, essential oils, tannins, steroidsand saponins. They very past it is used tobruises,treat bilious conditions, fever and puerperium. Kenaf seeds to contain at a phytosterols such as an alpha-linolenic acid (ALA), β-sitosterol, vitamin E, and other antioxidants it's with 24 N. The oils are obtained by the sonication, Soxhletand supercritical carbon dioxide for fluid extraction (SFE) process are found out the cytotoxic towards its ovarian cancer (CaOV3) and colon cancer (HT29) cell lines for a via the induction of the apoptosis. Recently to being used for the detect on the early colon carcinogenesis in the vivo by virtue of their bioactive with the compounds.

5.3 Fuel and Bioenergy Production

Biomass is the abundant and it can be carried out considered for the alternative source of sustainable energy and renewable, which they promise to the fulfil for continuous supply of the energy. They Agricultural biomass as such as industrial kenaf (H.cannabinus L.) it can been successfully with investigated for the great potential for as used to renewable and sustainable feedstock for the production of bioenergy.High capacity processes for the conversation of plentifully available biomass into liquid biofuels are needed for lowering reliance on petroleum sources.

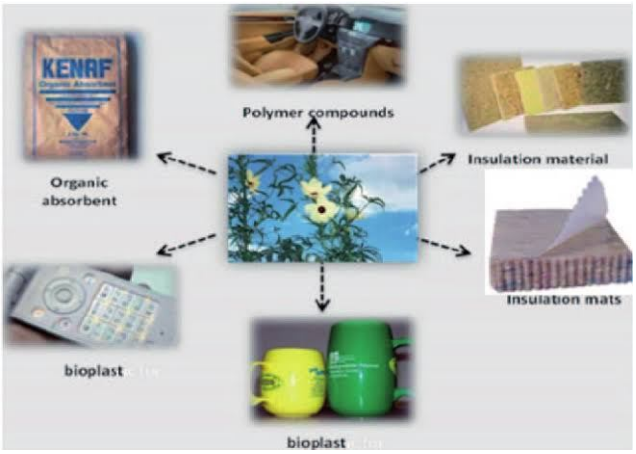

Fig 3. Bioenergy production

5.4 Geotextiles

Geotextiles are textile like the material used for improve soil structural performance as used for the short term as an absorption, as soil filters, mulching and erosion control. Kenaf fiber based for a geotextile complete with a polymeric geotextile on both the commercial and technical grounds. They only the need is to increase the competitiveness, with the biggest market share of focused to be the coir, jute and sisal fibers.They carried out the forest product laboratory initial effort is use to be kenaf as a staple fiber in nonwoven geotextiles.

5.5 Automobile Industries

They rising the efforts, awareness, recent trend towards sustainable product design, enable natural fiber on materials to be substitute synthetic based fiber in the preparation of the composites exclusively for automotive organizational and the semi structural applications. They Several the locomotive parts and their components at the prepared formerly by the glass fiber as a composite are recently to being mass-produced using for an environmentally as friendly composite. That for an among the natural fibers, kenaf received for the greater an attention from their scientists and auto-industries as all the parts could be perfectly for an applicable by the forming composites with the variety of the polymeric matrices. They pathway of the using at a kenaf components as they but their lower a mechanical strength and hydrophilic nature of the restricted a submission of particularly for an aesthetically as associated locomotive for components such as the interior accessories, floor pan, and dashboard.Its they Natural-based fiber is combined with thesynthetic based fiber such as the glass fiber with for the same matrix formation, to develop hybrid polymer composites, to overcome this a problem. Kenaf bast fiber scored as the highest priority value of the 0.129 or 12.9%, oil palm empty fruit bunch (EFB) fiber an (0.097), followed by the pineapple leaf fiber as (0.114), and many other typical types of the natural fibers based on the overall the design analysis.

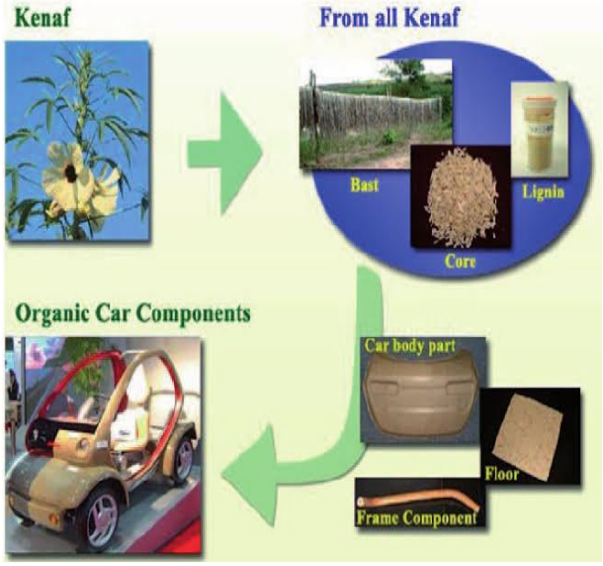

Fig 4. Automobile industries used for kenaf fiber

5.6 Pulp and Paper

Kenaf if the evidently by a promising for natural fiber, textiles and attire, basic source for both and industrial applications. Kenaf as shows a significant advantage, having a small harvestable as period and non-chlorinated for bleaching techniques as employed for the diverse applications. Kenaf has been the regarded as an ultimate source of the fiber for the paper and pulp industries because for the suitable and sufficient physical a strength property. Unlike the hemp, who's longer fiber are most the commonly used for a textiles and ropes, kenaf's outer stalk has been shorter fiber are similar

to the best softwood fibers and thus its applications are to be limited in making paper and composites. They kenaf core particles are also to be explored as the absorbents in paper for products like to the wipes, hygienic products, and tissues. Kenaf fiber are pulping (bast and core) also to the benefits with the atmosphere as this a procedure for requires to smaller amount of the energy and chemicals compared another typical pulping procedure for employed for the woody fibers. They makeable as a greater lumen diameter and negligible fiber as thickness to be provide for the better pulp mat formation in the paper making process. kenaf cell wall is a lumen is the best of pulp and paper processing techniques. If compared to be hardwood, core pulp has been the greater tensile and burst strength but they lower tear strength. Bark fiber are deliver to good slenderness ratio compared to be softwoods and undoubtedly to the most hardwoods. Kenaf bark fiber as a paper have to been improved mechanical strength and thus appropriate for a writing, wrapping,printing, and for packaging material.

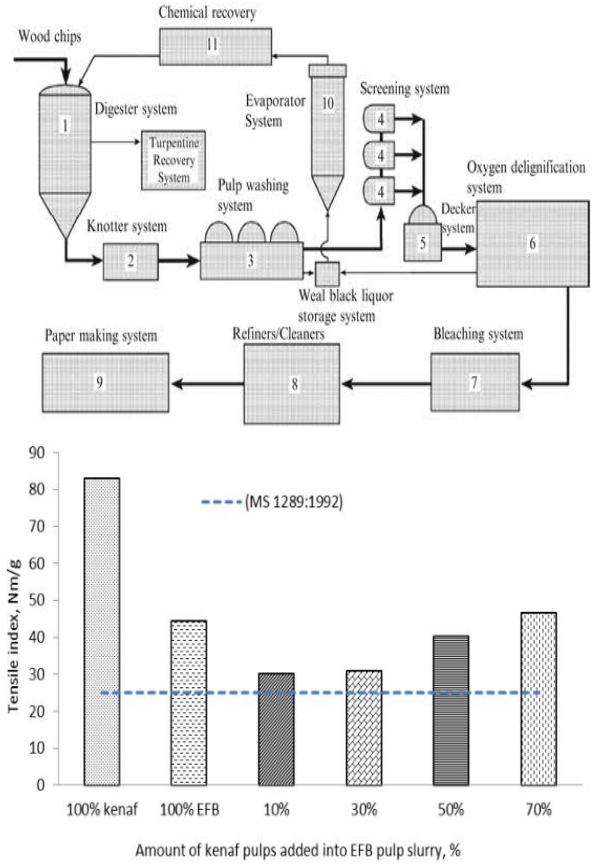

Fig 5. Kenaf fiber uses as Pulp and Paper

5.7 New Application of Kenaf Fiber

A new high-end use the kenaf was a discovered when it was blended with cotton to convert them the into fabric and yarn. They lightweight blend fabrics is appealingly attractive, having a linen look, soft to touch and pleasing.LG and Samsung employ for a kenaf powder used to investigating as an alternative material for mobile and laptop covers. They Armor factory a Malacca province of the Malaysia is engaged for the performing research work with on blending kenaf with the Kevlar to create a sort of the brighter bulletproof vest. If they another project, manufacturers are the willing to use to be kenaf fibers for as ageotextile are applied for an erosion control. Kenaf core is to be also being useful for the soil remediation for carried on hydrocarbonate infestations. Then industrial unit as Sabah, Malaysia, is organizing to be intermix the kenaf with the EFB fiber for the forthcoming fabrication. They Malaysian Timber Industry Board (MTIB) of the Malaysia reported for that kenaf is to being used for making on the pulp and paper in the USA, China,jeans in Mexico and Thailand, indoor panels and other an interior components for the high-end cars like on a BMW and Mercedes Benz, and in composite materials for the building or construction industry. They recently, business corporations like Sony, Apple, The Nature Co., Recreational Equipment Inc. (REI), Warner Bros., J.C. Penny, The Gap, Esprit International, and Birkenstock Potential Utilization of Kenaf Biomass as a Different Applications 27 are the under way to be consume for the kenaf paper as catalogs and many other to be related purposes. Then major printing and graphics firms as a Kinkos,Anderson Lithographics, George Rice and Sons, and Ventura Printing as the ready to be offer printing services on the kenaf paper. Kenaf paper is recently being to be utilized by the major publisher companies, corporations, graphics firms, printing and industries.

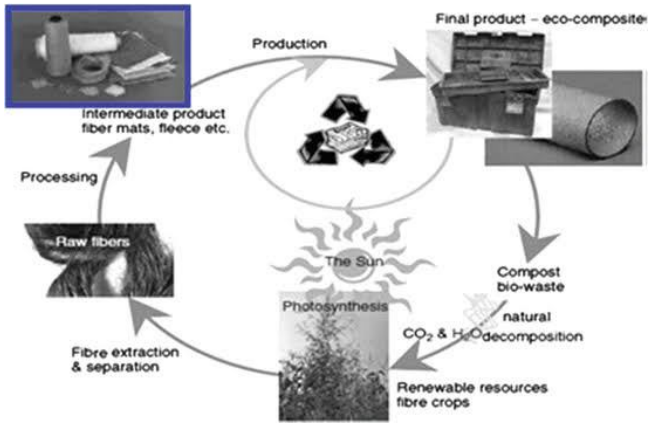

Fig 6. New application of kenaf fiber production

VI. RESULT AND DISCUSSION

Based on this review for composite materials are role with the construction industries, the study and review on their processing technically specified for properties and application are important. Hence, this paper kenaf fiber absorbed with co_2 on atmosphere for concrete blocks and Also, applications of kenaf reinforce polymer composites.That the addition of kenaf

fiber used with reinforced concrete beams are order to enhance the strength of the concrete structures is low cost and lightweight. If they according to many researchers, the addition of kenaf fiber create the into concrete are low workable or inadequate workability to the concrete. Mainly reason for Super plasticizer add with the without any affecting on other properties of concrete may be on addition of solve the problem.The water absorption of conventional concrete has lower than that of the concrete with kenaf fibre used with him. Kenaf fiber will absorb co_2 from the atmosphere, so it will be used in the concrete, hollow bricks, wall panels etc in the building to control the pollution.

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