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Niche Marketing of Date Palm based Food and Beverages as Health Products

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A 'Target Marketing' approach may be suitable for achieving a competitive edge by date palm sellers and overcoming the difficulties like seasonality, high volumes, intense competition, and income stagnancy. Michael Porter's Diamond Model has been applied to check the capacity and dependency of date palm producing countries on different determinants in the process of getting a competitive edge. The results confirm the need of product diversification and target marketing approach. Offering innovative premium products to the quality conscious segments and developing new date-based minimally processed foods, processed culinary ingredients and ready-to-consume processed foods and beverages as substitutes to unhealthy ultra-processed products will benefit the marketers and the consumers both. Producing value-added premium products and adopting appropriate marketing methods with promotional campaigns will lead to healthy food habits and also stimulate preferences for these items. A coordinated effort will give the date industry a sustainable growth and the people a healthy life.

Keywords: Date Palm Marketing, Niche Marketing, International Target Marketing, Value Marketing, Value Addition in Date Industries, Health Foods

JEL Classification: Q13, M31, L66, P36, P32, P33

The world has turned very competitive. To gain and maintain a sustainable competitive edge is the success formula for individuals, business units and the nations alike in all the economic pursuits. Using

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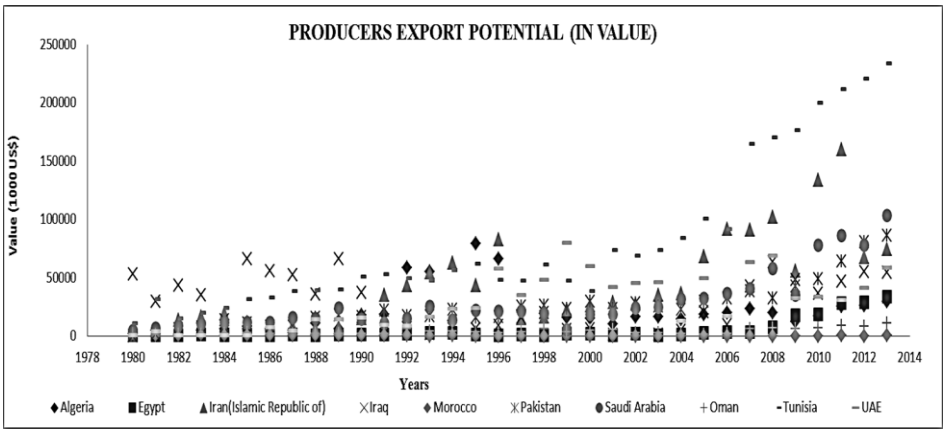
the date palm resources by the producing countries for achieving their economic prosperity also requires following the same route. The nations bestowed with date palm have to evaluate their potential and evolve a strategy for better performance.

1. Current Status of Dates Palm

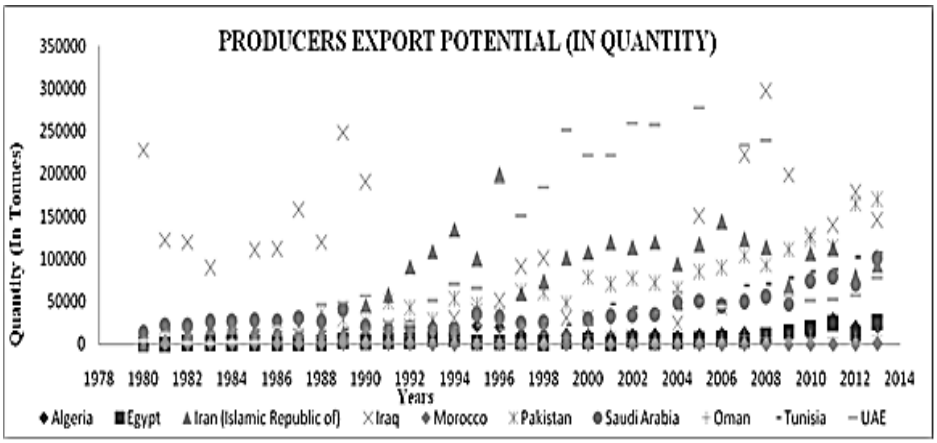
Presently, the major varieties of date palm fruits are uniformly supplied by producers of different countries on highly competitive prices. The date palm fruits are sold in large quantities domestically and exported internationally to raise revenues and achieve higher targets by meeting the global demands. Exporting opportunities and the involved low risk perceptions have resulted in higher commitment to exports (Rashidi 2013). The research by Marshudi (2002) for traditional date palms of Oman has revealed the quality issues in dates' production causing low return to the producers.

Graph 1 shows the value of annual exports of the major date exporting countries which if we compare with Graph 2 (that gives the annual export quantities of the same set of countries) indicates a difference in their positions. Date fruit varieties and their values differ significantly. Countries on top in values of export in recent years i.e. Tunisia and Saudi Arabia are not the ones who top in quantities i.e. Pakistan and Iraq. (See Graphs 1 & 2).

Variance analysis has been done by Kahtani (2007) indicating significant difference in prices, varieties and the marketing margins therein and the expected demand to increase with the population growth. Liu (2003) reported scope for increased imports of *deglet nour* and *Mejool* dates in Europe provided that the logistic constraints were overcome and superior quality, proper packaging and easy traceability ensured. The study also found no possibility of significant rise in price from the present level.



Graph 1: Value of Annual Exports of Dates by Different countries (Drawn from FAO August, 2016)



Graph 2: Quantity of Annual Exports of Dates by Different countries (Drawn from FAO August, 2016)

In an effort to standardize the quality norms, Abdoulhadi (2011) outlined four texture parameters *viz*, hardness, springiness, cohesiveness and resilience of Saudi Arabian date cultivars i.e. *Khalas, Sheshi* and *Reziz*. This is essential for protecting the identity of the cultivars and strengthening the quality grade norms in major varieties to boost the export of dates. Seasonality, perishability, quality standards, packaging and logistics are the major areas of concern apart from the demand limitations for the date palm industry. There is a negligible share of value-added date palm based products in the total market. Moreover, the sector

lacks a focus on arrangements for quality, market assessment, target marketing, product development, infrastructure and strategies for marketing value added products.

2. Problem Statement

A number of researches have pointed out the detrimental effect of inter-firm competition in dates (e.g., Villas-Boas 1999, Chen et al. 2001). FAO working paper on commodity and trade policy research has indicated stagnation in EU imports of date palm fruits and a decline in its prices since 1996 (Liu 2003). The possibility of utilising consumer surplus to attain a competitive edge by date producers needs attention (Wathieu 2002). To increase the value of exports, the date palm industry in fact needs new date products (Liu 2003). Substandard or mixed-up varieties fetch in lower prices and therefore research and development is needed to modernize and upgrade the products, especially the established varieties like *Medjool*, *Barhee Khalas*, *Abu Naringa*, *Barni*, *Madlouki* and *Faradh* (Mbaga et al. 2011). The study also finds the scope of developing alternative uses of date palm resources for offering food ingredients, semi-processed and ultra-processed food and beverages (Mbaga et al. 2011). Developing and marketing of organic or health products out of date palm has received less attention of the producers (Mahmoudi et al. 2008).

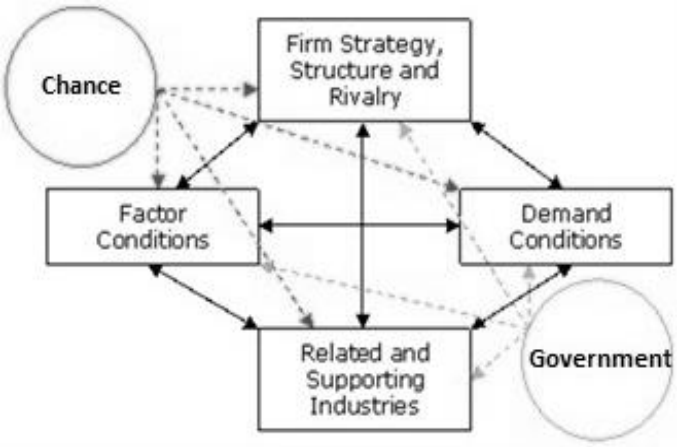
Under the given circumstances, the present study outlines the following objectives:

a) To evaluate the competitive strength of nations in dates' exports
b) To identify the potential problem areas of the top date palm product exporting countries
c) To analyse the fitness of date-based products as alternatives to ongoing food, beverages and health products
d) To match the global demand of food, beverages and health products with date-based products to judge their potential
e) To explore the possibilities of launching dates in different verticals such as minimally processed foods, processed culinary ingredients and ready-to-consume processed foods and beverages.

3. Michael Porter's Diamond Model

Analysing the whole scenario in the framework of Michael Porter's Diamond Model of Competitive Advantage of Nations guides the date palm producers in the wake of global competition. According to Porter's approach the determinants of competitive advantage of nation are four interlinked factors i.e. Factor Conditions, Demand Conditions, Related and Supporting Industries and Company Strategy, Structure & Rivalry. He adds two more factors, namely Government Policy and Chance (exogenous shocks) to make it a 'Diamond Model'. Porter has elaborated the role of these factors in his pioneering work (Porter 1990). We hereby used this framework (using first four factors only) in explaining the determinants of the competitive advantage of date palm as enjoyed by date producing nations. Using the FAO database, we have drawn proxy inputs for the model factors which appear to be closer to Porter descriptions in the context of date palm. The results have then been discussed and interpreted.

Figure 1: Porter's Diamond Model of Competitive Advantage



***Model Formulation**:* Value of dates exports from Country *A* = f {*A*'s factor condition (production 'P' + harvest area 'H') + demand condition (DC) (total value of world dates imports) + related and supporting industries (DQ) (total quantity of dates of country *A*'s industries) + firm strategy, structure, and rivalry (DX) (export of competitive countries)}

Adopting this model in econometric terms is as under;

$$DX_A = \alpha_{0A} + \beta_{1A}H_A + \beta_{2A}P_A + \beta_{3A}DC_w + \beta_{4A}DQ_A + \beta_{5A}DX_E + \beta_{6A}DX_{In} + \beta_{7A}DX_{Ir} + \beta_{8A}DX_M + \beta_{9A}DX_P + \beta_{10A}DX_S + \beta_{11A}DX_O + \beta_{12A}DX_T + \beta_{13A}DX_U + \varepsilon \quad (1)$$

$$DX_E = \alpha_{0E} + \beta_{1E}H_E + \beta_{2E}P_E + \beta_{3E}DC_w + \beta_{4E}DQ_E + \beta_{5E}DX_A + \beta_{6E}DX_{In} + \beta_{7E}DX_{Ir} + \beta_{8E}DX_M + \beta_{9E}DX_P + \beta_{10E}DX_S + \beta_{11E}DX_O + \beta_{12E}DX_T + \beta_{13E}DX_U + \varepsilon \quad (2)$$

$$DX_{In} = \alpha_{0In} + \beta_{1In}H_{In} + \beta_{2In}P_{In} + \beta_{3In}DC_w + \beta_{4In}DQ_{In} + \beta_{5In}DX_A + \beta_{6In}DX_E + \beta_{7In}DX_{Ir} + \beta_{8In}DX_M + \beta_{9In}DX_P + \beta_{10In}DX_S + \beta_{11In}DX_O + \beta_{12In}DX_T + \beta_{13In}DX_U + \varepsilon \quad (3)$$

$$DX_{Ir} = \alpha_{0Ir} + \beta_{1Ir}H_{Ir} + \beta_{2Ir}P_{Ir} + \beta_{3Ir}DC_w + \beta_{4Ir}DQ_{Ir} + \beta_{5Ir}DX_A + \beta_{6Ir}DX_E + \beta_{7Ir}DX_{In} + \beta_{8Ir}DX_M + \beta_{9Ir}DX_P + \beta_{10Ir}DX_S + \beta_{11Ir}DX_O + \beta_{12Ir}DX_T + \beta_{13Ir}DX_U + \varepsilon \quad (4)$$

$$DX_M = \alpha_{0M} + \beta_{1M}H_M + \beta_{2M}P_M + \beta_{3M}DC_w + \beta_{4M}DQ_M + \beta_{5M}DX_A + \beta_{6M}DX_E + \beta_{7M}DX_{In} + \beta_{8M}DX_{Ir} + \beta_{9M}DX_P + \beta_{10M}DX_S + \beta_{11M}DX_O + \beta_{12M}DX_T + \beta_{13M}DX_U + \varepsilon \quad (5)$$

$$DX_P = \alpha_{0P} + \beta_{1P}H_P + \beta_{2P}P_P + \beta_{3P}DC_w + \beta_{4P}DQ_P + \beta_{5P}DX_A + \beta_{6P}DX_E + \beta_{7P}DX_{In} + \beta_{8P}DX_{Ir} + \beta_{9P}DX_M + \beta_{10P}DX_S + \beta_{11P}DX_O + \beta_{12P}DX_T + \beta_{13P}DX_U + \varepsilon \quad (6)$$

$$DX_S = \alpha_{0S} + \beta_{1S}H_S + \beta_{2S}P_S + \beta_{3S}DC_w + \beta_{4S}DQ_S + \beta_{5S}DX_A + \beta_{6S}DX_E + \beta_{7S}DX_{In} + \beta_{8S}DX_{Ir} + \beta_{9S}DX_M + \beta_{10S}DX_P + \beta_{11S}DX_O + \beta_{12S}DX_T + \beta_{13S}DX_U + \varepsilon \quad (7)$$

$$DX_O = \alpha_{0O} + \beta_{1O}H_O + \beta_{2O}P_O + \beta_{3O}DC_w + \beta_{4O}DQ_O + \beta_{5O}DX_A + \beta_{6O}DX_E + \beta_{7O}DX_{In} + \beta_{8O}DX_{Ir} + \beta_{9O}DX_M + \beta_{10O}DX_P + \beta_{11O}DX_S + \beta_{12O}DX_T + \beta_{13O}DX_U + \varepsilon \quad (8)$$

$$DX_T = \alpha_{0T} + \beta_{1T}H_T + \beta_{2T}P_T + \beta_{3T}DC_w + \beta_{4T}DQ_T + \beta_{5T}DX_A + \beta_{6T}DX_E + \beta_{7T}DX_{In} + \beta_{8T}DX_{Ir} + \beta_{9T}DX_M + \beta_{10T}DX_P + \beta_{11T}DX_S + \beta_{12T}DX_O + \beta_{13T}DX_U + \varepsilon \quad (9)$$

$$DX_U = \alpha_{0U} + \beta_{1U}H_U + \beta_{2U}P_U + \beta_{3U}DC_w + \beta_{4U}DQ_U + \beta_{5U}DX_A + \beta_{6U}DX_E + \beta_{7U}DX_{In} + \beta_{8U}DX_{Ir} + \beta_{9U}DX_M + \beta_{10U}DX_P + \beta_{11U}DX_S + \beta_{12U}DX_O + \beta_{13U}DX_T + \varepsilon \quad (10)$$

Where

H	Area harvested;	**P**	Production;	$\mathbf{DC_W}$	World Import Value
$\mathbf{DX_A}$	Algeria Export Value		$\mathbf{DQ_A}$	Algeria Export Quantity	
$\mathbf{DX_E}$	Egypt Export Value		$\mathbf{DQ_E}$	Egypt Export Quantity	
$\mathbf{DX_{In}}$	Iran Export Value		$\mathbf{DQ_{In}}$	Iran Export Quantity	
$\mathbf{DX_{Ir}}$	Iraq Export Value		$\mathbf{DQ_{Ir}}$	Iraq Export Quantity	
$\mathbf{DX_M}$	Morocco Export Value		$\mathbf{DQ_M}$	Morocco Export Quantity	
$\mathbf{DX_P}$	Pakistan Export Value		$\mathbf{DQ_P}$	Pakistan Export Quantity	
$\mathbf{DX_S}$	Saudi Arabia Export Value		$\mathbf{DQ_S}$	Saudi Arabia Export Quantity	
$\mathbf{DX_O}$	Oman Export Value		$\mathbf{DQ_O}$	Oman Export Quantity	
$\mathbf{DX_T}$	Tunisia Export Value		$\mathbf{DQ_T}$	Tunisia Export Quantity	
$\mathbf{DX_U}$	UAE Export Value		$\mathbf{DQ_U}$	UAE Export Quantity	
α_0	Intercept for country		ε	Random variable or error term	
$\beta_{1.....13}$	Parameters of independent variables for the countries in equations (1) to (10)				

Data, Variables and Results*:* This study is conducted with the help of FAO database. The test is conducted by identifying four variables in Porter's Diamond Model. In the absence of supporting industries' data, we have taken quantity of export as a proxy variable to calculate the issue. In the analysis, value of dates' exports is used as dependent variable for particular country and Porter's Diamond Model four variables as independent variables.

	Algeria	***Egypt***	***Iran***	***Iraq***	***Morocco***	***Pak***	***SA***	***Oman***	***Tunisia***	***UAE***
α_0	31974.8	294.6	-17853.0	28372.1	-37.5	4027.0	-3502.7	-1451.5	4429.0	-6100.5
β_1	-0.8344	-0.1334	-0.1575	0.1069	-0.0031	-0.2623	-0.1359	0.1158	-1.5000	0.3593
β_2	0.0665	-0.0037	0.0316	-0.0251	0.0004	0.0219	0.0007	-0.0213	0.1499	-0.1051
β_3	0.1421	-0.0018	0.1729	-0.0624	0.0001	0.0190	0.0477	0.0027	0.1274	0.1173
β_4	3.0124	0.6707	0.4997	0.2026	0.8286	0.3859	0.6772	0.6022	1.8867	0.1943
β_5	-2.3523	0.0092	-0.1734	-0.2283	0.0020	0.0397	-0.0198	-0.0009	0.1807	0.1728
β_6	-0.1632	-0.0214	0.3407	1.6769	0.0004	0.9299	0.1634	0.1354	-0.2454	0.0902
β_7	-0.2329	0.0204	-0.0046	-0.0639	-0.0004	0.0135	0.0557	0.0030	0.0970	-0.0280
β_8	-5.6966	0.0597	8.1817	3.3533	-0.0007	0.0267	-0.0736	0.0010	0.0103	0.0188
β_9	-0.6281	0.3067	-1.5048	-0.4370	0.0020	0.4076	-4.2364	0.5178	-9.1987	-7.9070
β_{10}	0.1003	0.0054	0.4779	0.4173	-0.0013	0.0412	0.1903	-0.0125	-0.0255	0.0627
β_{11}	-2.0926	-0.0995	-0.0645	0.7120	0.0212	-0.3307	0.8624	0.0170	-0.3154	-0.3042
β_{12}	0.2395	0.0331	-0.0210	-0.0160	0.0001	-0.1153	-0.0555	0.0021	0.3303	1.8897
β_{13}	-0.0702	-0.0382	-0.3845	0.0572	-0.0009	0.0520	0.0322	0.0090	-0.1040	0.1943
R Squ.	0.9073	0.9701	0.9026	0.9045	0.9284	0.9856	0.9810	0.9734	0.9948	0.9593
F Val.	14.30	47.41	13.55	13.84	18.95	99.88	75.42	53.51	279.26	34.46
Sig.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eq. No.	1	2	3	4	5	6	7	8	9	10

The result finds R square higher than 90% which means changes in dependent variables are explained by independent variables. The negative value of β_1 reflects that harvested area is not utilized to give a positive shift in country's export. Due to high domestic consumption β_2 of Egypt, Iraq, Oman and UAE show negative effect on date exports. Further, due to high domestic consumption, Egypt and Iraq are not affected by the world demand. Iran, Algeria, Tunisia, UAE and Saudi Arabia are significantly dependent on world export. It reflects the dependence of larger part of date producing countries on the global demand of dates. The support of related and service providing industries is higher in Algeria and Tunisia while Iraq and UAE need more such support to increase their total exports. The countries impacted negatively by the other exporting countries shows relative competencies. They may be the competitors in the same market segments. Among other countries, Morocco gives highly negative impact on date export of Algeria. Therefore, Morocco stands significantly negative for the Algerian date export whereas Iran and Iraq appear giving positive support to each other in export. Egypt export activity causes a positive effect in the export of Iraq and Pakistan. Morocco impacts significantly negative on the exports of Saudi Arabia, Tunisia and UAE. While date exports of Oman play supportive role in the market creation effort by UAE.

These relationships indicate complementary, substitutional or independent role in their export product-mix. It implies that whatever be the attractiveness in an offer, everyone should not attempt to give the same thing to the same market segment. It loses the competitive edge of the producer. They should diversify and find a loyal market for themselves distinctively.

The analysis result (in table above) entails that countries need to plan their harvesting area and production activities in terms of market demand. The producers are catering to a huge market but there is a need to focus on more demanding segments of the world market.

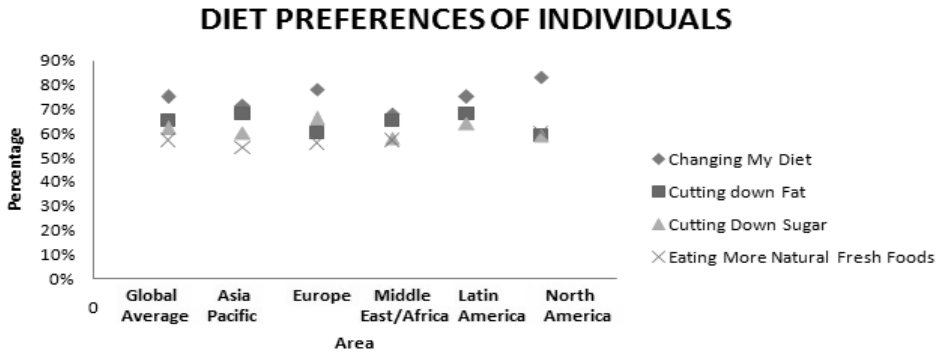
4. Niche Marketing - A Solution

To thrive in a highly competitive market, the date palm producers cannot effectively address the universal needs of everyone on the earth by 'one-size-fits-all' approach. The alternative solution appears to be a 'Go Niche' approach. For new businesses and the established businesses alike, a

focused and targeted marketing approach is preferable rather than claiming to have the solution for every consumer requirements. In this context 'Niche Marketing' will help the date palm industry in marketing, branding and positioning the right products to the right people through powering date-based brands with substantive campaigns.

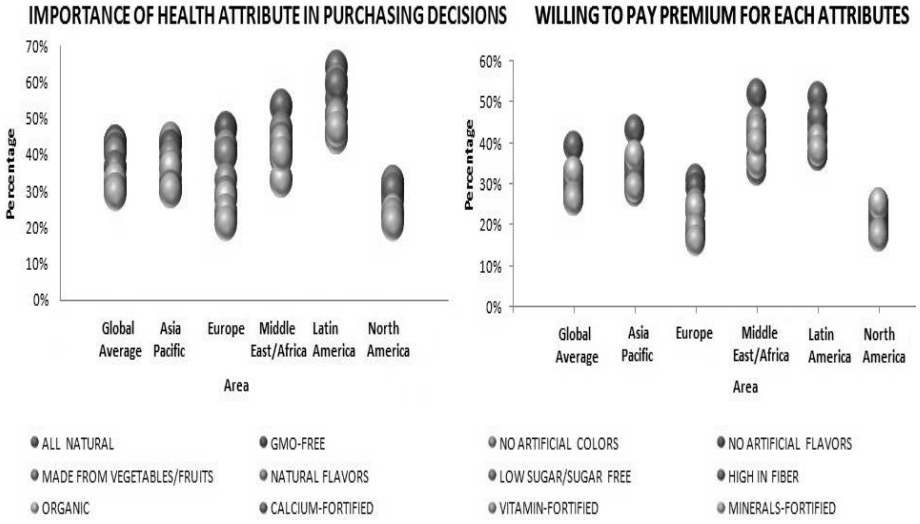
Mahmoudi et al. (2008) have found that the conventional date palm cultivation by individual countries is insufficient, product quality low, field and post-harvest losses high, and the date products and by-products utilization need improvement. They have recommended date palm processing and marketing through organic culture. Aljanobi (2009) has evaluated the date supply and recommended the production of unique, innovative products based on market demand with the available enormous amount of raw material. Al-Shreed et al. (2012) have identified five potential strengths of Saudi Arabian dates that may be used, individually or collectively, to strengthen the palm dates exports from the kingdom to all five groups taken in the study as importing countries where they also measured the potential market opportunities. Mbaga et al. (2011) have identified the need to develop alternative uses for dates such as baby food ingredients, sugar production from dates, baking ingredients, sweets, confectionery, chocolates, ice cream, salads, sauces, coffee, preservatives, breakfast cereals and soft drinks.

The diet preferences are on the changing track because of health related issues caused by changing life style and work culture in the population. People are willing to shift their diet accordingly if they get adequate fat-free and/or sugar-free ingredients assimilated with their food. The popularity of natural and/or fresh food is also an emerging trend in these regions.



Graph 3: Diet Preferences as Desired by People of Different Regions (Nielsen Survey, 2015)

The regions are demanding the food that delivers the improved qualitative characteristics. Some of the demand characteristics, as desired by the global population region-wise, are given in Graph 3 & 4. The Date producers, industrialists and food processing units can take help of these region-wise demand characteristics in their product design and pricing decision.



Graph 4: Importance of Health Attributes & Willingness to pay for health (Neilsen Survey 2015)

The preference factors region-wise and the willingness to pay a premium price for the given factors can guide the producers to develop the combinations of product attributes which can match the segment's taste for each variety. In Graph 3 above the demand of natural products is appearing to be at higher side in Latin America but Middle Eastern and African people are willing to pay premium on this attribute more than the former. North America is ready to pay for organic products but not paying more than those in Asia. This way, the analysis of attributes' preferences can help designing a marketing mix suitable for the targeted geographical markets.

Processing, value addition and value marketing are the strategic options that can substantially accelerate the growth of this industry. Market segmentation, targeting and positioning will be usual process to cover varied kinds of consumers by offering each one of them the combinations of attributes they prefer most. With a wide range of differentiated products, the industry will cover larger population, satisfy the consumers better and eventually achieve higher growth and earn profit as well.

5. Dates for Health Problems

The global demand for food, beverages and health products is growing rapidly. According to the Global Burden of Disease study (2013) 28% adults and 47% children are obese or overweight worldwide. Food and Agriculture Organization (FAO) is working hard to protect world population from undernourishment, child mortality, food inadequacy and other emerging diseases through MDG (Millennium Development Goals) and WHO (World Health Organisation). There is an emerging requirement to ensure providing safe, healthy and nutritious food and drinks. Date palm products have numerous inherent medicinal, nutritional and health advantages that have been identified, investigated and proved by the experts. Some of those have been picked up from the available literature and consolidated in Table 1 below:

Table 1: Health benefits of Date Palm as Reported in Literature

Uses & Role of Dates	Literature References
Dietary use of dates, seeds & date pit	Franz et al. 2002; Vayalil 2002; Biglari et al., 2009; Baliga et al. 2011; Jassim and Naji 2010
Date fruit and Date Seed Nutritional value	Al-Shahib and Marshall 2003; Al-Farsi and Lee 2008; Mayo-Wilson et al. 2011; Al-Hooti et al. 1997; Franz et al. 2002; Polyzos et al., 2007;Mayo-Wilson et al. 2011; Baliga et al., 2011; O'Dell and Sunde 1997; Appel et al. 1997; Al-Shahib and Marshall 2002; Mohammad and Habibi 2011; Al- Farsi et al. 2005; Joseph 1999; Wargovich 2000; Al-Hooti et al. 1997; El-Zoghbi 1997; Di et al. 1991; Mansouri et al. 2005; Maillard and Berset 1995; Tapas, et al. 2008;
Role of Dates as an Antioxidant	Pitsch et al. 2010; Folli et al. 2011; Saafi et al. 2011; Das and Das 2007; Biglari 2009; Sanzari et al. 2011; Das and Das 2oo7; Park et al. 2011; Ross et al. 2010; Biglari et al. 2009; Bardia et al. 2008; Alhussein 2009; Al- Farsi et al. 2005; Vayalil 2002; Pitsch et al. 2010; Al-Mamary et al. 2011; Farag 2011; Steinbrenner & Sies 2009; Ljubuncic et al. 2005; Deng et al. 2012; Biglari et al. 2008; Joseph et al. 1999; Vinson et al. 2005; Chaira et al. 2007; Al- Farsi et al. 2005; Baliga et al. 2011; Yeh et al. 2008
Role of Dates as an Antihyperlipidemic	Lusis 2002; Baliga et al. 2011; Al-Maiman 2005; Rock et al. 2009; Evans et al. 1999; Kattak 2002; Abuelgassim 2010; Amira et al. 2011; Shafiei et al., 2010
Role of Dates as a Hepatoprotective	Asha and Pushpangadan 1998; Adewusi and Afolayan 2010; Recknagel 1983; Adewusi and Afolayan 2010; Hrvoje et al. 2009; Miller et al. 2003; Bruck et al. 2001; Bastway et al. 2008; Al-Qarawi et al. 2001; Bruck et al. 2001; Bastway et al. 2008; Pitsch et al. 2010; Burtis and Ashwood 2001; Bastway et al. 2008; Al-Qarawi et al. 2004; Jassim and Naji 2010; Mohammad and Habibi 2011; Lin and Tome 1988; Pitsch et al. 2010; Al-Qarawi et al. 2004; El-Mougy et al., 1991; Kowalski et al. 1990; Al-Mamary et al., 2011; Baliga et al., 2011; Rikans et al. 1987
Role of Dates in Diabetes	Mokhtari et al. 2008; Aryangat and Gerich 2010; Ovbiagele et al. 2011; Miller et al. 2002; Brand-Miller et al. 2003; Jenkins et al. 2008; Alkaabi et al. 2011; Miller et al. 2003; Al-Hooti et al. 1997; Biglari 2009; Brand et al. 1991; Gilbertson et al. 2001; El-Mougy et al. 1991; Al-Shahib and Marshall 2002; Jenkins et al. 2008; Mohammad and Habibi 2011; Rock et al. 2009; Aryangat and Gerich 2010; Budin et al. 2009; Mard et al. 2010
Role of Dates in cancer	Vayalil 2002; Lakshmipathi et al. 2009; Saafi et al. 2011; Ishurda and John 2005; Fullerton et al. 2000

Note: The references, being more than 100, have not been included in the bibliography due to the paucity of space. These are easily available on the internet.

These works are providing enough justification for usefulness of date fruits, seeds and fronds in different forms for the diverse health needs of world population. We can use all parts of date palm to produce and offer as food, drink, food / drink ingredient, additive or even as a health remedy or medicine.

6. Date-based Products

There is a need to minimize competition within segments and focus on new segments of market with new products as alternatives to contemporary food and beverage items. Date is a fit item to be used for developing varieties of new products which may serve as healthy alternatives to contemporary food and beverage items. The date fruits and seeds contain variegated compositions such as dietary fiber, energy, sugar (fructose and dextrose), fatty acid, vitamins (thiamin, riboflavin, niacin, folate, vitamin A, C and K), nutrition, minerals (calcium, iron, phosphorus, sodium, potassium, copper, magnesium and zinc), protein, fats, carbohydrate, pigments, antioxidants flavonoids (tannins, ß-carotene, lutein, and zea-xanthin), carotenoids, phenolic acids, anthocyanins etc. The medicinal benefits of date fruits and seeds are varied and not limited with antioxidant, anti-inflammatory, anti-mutagenic, anti-cancer, anti-analgesic, antipyretic, nephron-protective, hemolytic, anti-ageing, fertility, pregnancy, lactation, reproductive system, abdominal troubles and other medicinal benefits such as protection for colds, sore throat, fever etc. Further, date fruits and seeds can take the forms of minimally processed foods, processed culinary ingredients and ready-to-consume processed foods and beverages. Due to such gifted properties in this product, the product combinations and its variants are to be developed that address the requirements of different market segments to meet the global demands of those segments.

The market priority on the basis of above findings may be as under: (Detail in Table 2)

***Stage 1: Unprocessed and minimally processed foods*:** No processing, or mostly physical processes used to make foods durable, accessible, convenient, palatable, safe & attractive

Stage 2: Processed culinary or food industry ingredients: Extraction and purification of unprocessed or minimally processed foods, resulting in additives or ingredients used for preparation and cooking of dishes at home or restaurants or used for the manufacturing of ultra-processed food products

Stage 3: ultra-processed food products: Processing of a mix or processed culinary or food ingredients to create durable, accessible, convenient, easy to serve, ready to eat snacks or desserts as alternative to home dishes or other high demand foods

Table 2: Date-based Products and their fitness to Geographical Market segments

Food Stage	Examples	Market Priority
Stage 1	Fresh Dates, Chilled Dates, Vacuum Packed Dates, Dried Dates, pure date juice etc.	North America>Latin America>Middle East> Africa>Europe>Asia Pacific
Stage 2	Date seed Oil, Date flours, Date sucrose	Latin America>Asia pacific>Europe>Middle East> Africa>North America
Stage3	Use in Breads, Biscuits, cakes and pastries, ice-cream, jams, syrup, chocolates, confectionery, replace sugar in beverages and milk drinks, added ingredients for soft drinks, pizzas and/or other recipe, salads, noodle, infant milks, baby food and energy drinks	Middle East>Africa> Latin America> Asia pacific>Europe> North America

The above table is based on the preferences, willingness and shift of dietary habits of the regions.

Mikki (1998), in his research report, recommended strategic options to enhance the profitability by these plants through competitive production, marketing differentiation by branding, advertising, good distribution and continuous market research. New products including date paste, date syrup and vinegar and utilization of dates palm residues were also recommended. Sirisena et al. (2015), in finding the ways of developing a sustainable date palm industry in Australia, recommended the utilization of date seeds for health products for improving profitability and financial security of this industry.

7. Market Development

Development of new range of products from date palm will also require a market development effort for popularization and acceptance by the targeted segments. Research by Al-Shahib (2003) concluded that an improvement in health consciousness and nutrition education could significantly increase the demand for dates. Promoting the date products could also achieve substantial health benefits. Involving the marketing professionals for long-term market development will be unavoidable who will be entrusted with the following tasks:

a) Attracting the health, nutrition and quality conscious segments to date and date products

b) Demonstrating date-based variants as replacement of conventional ice creams, coffees, sweets, confectioneries, chocolates, preservatives, salads, sauces, breakfast cereals and soft drinks

c) Positioning: Evolving a Marketing promotional plan (for signaling market position) to popularize them across the globe

d) Running a social campaign for changing food habits for better health

To motivate the people for adoption of date-based food and beverages, a social transformation may be required across the regions. An all-round, coordinated and well organized social campaign to change the food habits of our society will include the following measures be taken up on regular basis:

1) Public Awareness Campaigns (through mass-contact events at country-wide level)

2) Publicity and Promotion (by using Mass Media and Marketing tools)

3) Education and Counselling (by incorporating the matter in educational text books)

4) A change of the mind-set (by organizing seminars, training programs & exhibits)

5) Awards and recognitions at all levels on promoting a healthy life style.

A comprehensive, integrated and well supported effort by public and private institutions will only help achieving this social transformation over a period of time. As a result, a tendency to prefer date-based healthy food and drink items will be visible. Mikki (1998) has called upon the production plants, research centres and the universities for a mutual cooperation and coordination to promote the date palm products, by-products and residues.

8. Conclusion

The date palm industry is presently troubled with underutilisation of its hidden economic and health potential. Quality up-gradation, value addition and target marketing will greatly enhance the revenue generating and profit making capacity of the industry. Developing the premium value-added items out of date palm resources can solve many of the nutrition and health related problems in the developed and developing nations. Launching such food and beverages, food additives and ingredients and the industrial material made out of date palm as premium products or by-products will leverage this industry to achieve a competitive edge in the market. Strategic use of Niche Marketing will attract the right people to the right products to tap the full potential of date palm wealth. Running a promotional campaign for a social transformation will also help popularizing these date-based products across the globe.

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