Integrating Gene Expression Regulation into Sustainable Urban Planning for Renewable Energy Development

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ABSTRACT

This article explores the intersection of gene expression regulation and sustainable urban planning in the context of renewable energy development. As cities strive to become more sustainable, the integration of renewable energies into urban environments is critical. However, achieving this integration requires innovative approaches that consider both biological and technological factors. Gene expression regulation, a mechanism by which cells control the amount and timing of gene expression, offers potential insights for optimizing renewable energy systems and enhancing their adaptability within urban settings. This study examines how the principles of gene expression regulation can be applied to sustainable urban planning, with the goal of creating more resilient and efficient renewable energy infrastructures. The findings suggest that by mimicking biological processes, urban planners and engineers can develop more sustainable cities that are better equipped to meet the energy demands of the future. This study explores the integration of gene expression regulation into sustainable urban planning to enhance renewable energy development. By examining how gene expression modulation can influence the efficiency of energy-producing organisms and systems, the research identifies novel strategies for optimizing renewable energy technologies within urban environments. The study investigates the impact of genetic and epigenetic factors on the performance of bioenergy systems, including microbial fuel cells and biohydrogen production, and assesses how these systems can be effectively integrated into urban planning frameworks. Results demonstrate that incorporating gene expression regulation into the design of sustainable urban infrastructure can significantly improve the efficiency and sustainability of renewable energy solutions. This approach not only advances technological innovation but also contributes to the broader goals of environmental sustainability and urban resilience.

KEYWORDS: sustainability, gene expression regulation, renewable energies, sustainable urban planning

1.0 INTRODUCTION

Sustainable urban planning is becoming increasingly vital as cities around the world face the dual challenges of population growth and environmental degradation. Central to these efforts is the integration of renewable energies into urban environments, which offers a path to reducing carbon footprints and mitigating climate change. However, the complexity of urban systems and the need for flexibility in energy supply and demand require innovative approaches that go beyond traditional planning methods. Gene expression regulation, a biological process that allows cells to control when and how much of a gene's product is made, has emerged as a novel framework for thinking about these challenges. By drawing parallels between the adaptability of biological systems and the needs of urban energy systems, this article explores how the principles of gene expression regulation can inform the development of more resilient and sustainable cities. Specifically, it investigates the potential for applying these principles to optimize renewable energy systems within urban environments, thereby enhancing their sustainability and effectiveness. As urban areas continue to expand and face increasing pressures from climate change and resource scarcity, the need for innovative approaches to sustainability and renewable energy development becomes more critical. Sustainable urban planning aims to create environments that are both economically viable and environmentally friendly, reducing the ecological footprint while enhancing the quality of life for residents. One promising approach to advancing sustainable urban planning is the integration of renewable energy technologies. These technologies, such as solar panels, wind turbines, and bioenergy systems, play a crucial role in reducing dependence on fossil fuels and mitigating greenhouse gas emissions [1-9]. However, optimizing these technologies for urban settings requires more than just technological advancements; it necessitates a deeper understanding of how biological processes can be harnessed to support renewable energy goals. Gene expression regulation, a fundamental aspect of cellular biology, has emerged as a key factor in enhancing the efficiency and functionality of renewable energy systems. By manipulating gene expression, it is possible to optimize the performance of microorganisms and plants used in bioenergy production, such as microbial fuel cells and algae-based biofuels. These biological systems can convert organic waste and sunlight into valuable energy sources, offering a sustainable alternative to traditional energy technologies. The ability to regulate gene expression allows for precise control over the production and efficiency of these biological processes, potentially leading to significant improvements in energy yield and system stability. In the context of sustainable urban planning, integrating gene expression regulation into renewable energy systems presents a novel approach to addressing the challenges of energy production in densely populated areas. Urban environments are characterized by unique conditions, including limited space, variable environmental factors, and high energy demands. Therefore, it is essential to develop energy systems that are not only effective but also adaptable to the specific needs and constraints of urban settings. Gene expression regulation offers a way to tailor bioenergy systems to these conditions, enhancing their performance and making them more suitable for integration into urban infrastructure [10-19]. The intersection of gene expression regulation and renewable energy development also opens up opportunities for interdisciplinary research and collaboration. Urban planners, environmental scientists, and biotechnologists can work together to design and implement innovative solutions that address both energy and sustainability goals. This collaborative approach can lead to the development of new technologies and strategies that maximize the benefits of gene expression regulation while minimizing environmental impact. By fostering such interdisciplinary partnerships, it is possible to advance the state of renewable energy technologies and contribute to the creation of more sustainable urban environments. One of the key benefits of integrating gene expression regulation into renewable energy systems is the potential for enhanced efficiency and resource utilization. For instance, genetically engineered microorganisms can be optimized to perform better under specific environmental conditions, such as varying temperatures and pH levels commonly found in urban settings. This optimization can lead to higher energy yields and more reliable performance, making renewable energy systems more practical and economically viable for urban applications. Furthermore, the use of genetically modified plants or algae can improve the efficiency of biofuel production, offering a sustainable source of energy that can be integrated into urban infrastructure. Sustainable urban planning also involves addressing the social and economic aspects of renewable energy development. By incorporating gene expression regulation into energy systems, cities can create new opportunities for economic growth and job creation in the biotechnology and renewable energy sectors [20-31]. Additionally, the implementation of advanced energy technologies can contribute to improved public health and environmental quality, aligning with broader goals of social sustainability. As cities continue to grow and evolve, it is essential to consider how technological advancements can be leveraged to create more resilient and equitable urban environments. The integration of gene expression regulation into renewable energy development represents a forward-thinking approach to addressing the challenges of sustainability and urbanization. By optimizing biological systems for energy production, it is possible to enhance the efficiency and effectiveness of renewable energy technologies, making them more suitable for urban applications. This approach not only supports the goals of sustainable urban planning but also contributes to the broader objectives of environmental sustainability and resource conservation. In conclusion, the integration of gene expression regulation into sustainable urban planning for renewable energy development offers a promising avenue for advancing both technological innovation and environmental stewardship. By leveraging the power of genetic and epigenetic mechanisms, it is possible to enhance the performance of renewable energy systems and create more sustainable urban environments. This interdisciplinary approach has the potential to drive significant progress in the field of renewable energy and contribute to the development of resilient and sustainable cities [32-39].

2.0 LITERATURE REVIEW

The field of sustainable urban planning has evolved significantly over the past few decades, with a growing emphasis on integrating renewable energy sources into urban infrastructure. Traditional approaches have focused on large-scale energy projects, such as solar farms and wind turbines, often located outside city boundaries. However, recent trends emphasize the need for more localized, distributed energy systems that can be seamlessly integrated into urban environments. These systems, while offering numerous benefits, also present unique challenges in terms of their design, implementation, and operation within complex urban ecosystems. Gene expression regulation, a wellstudied mechanism in biology, provides a model for understanding how systems can be both adaptable and stable in the face of changing conditions. In biology, gene expression is tightly regulated to ensure that cells can respond to environmental cues while maintaining homeostasis. Similarly, urban energy systems must be capable of responding to fluctuations in energy demand and supply while maintaining overall system stability. Previous research has explored the application of biological principles to engineering and technology, but there is a gap in the literature regarding the specific application of gene expression regulation to sustainable urban planning and renewable energy integration. Gene expression regulation plays a pivotal role in optimizing the performance of biological systems used for renewable energy production. In the realm of bioenergy, microorganisms such as bacteria and algae are engineered to enhance their ability to produce biofuels or electricity. For instance, research has demonstrated that genetic modifications can significantly increase the efficiency of microbial fuel cells by improving electron transfer and substrate utilization. Similarly, genetically engineered algae have been shown to produce higher yields of biofuels under specific growth conditions. These advancements highlight the potential of gene expression regulation to enhance the efficiency and scalability of renewable energy technologies. The integration of biotechnological innovations into urban energy systems offers a promising approach to addressing the energy demands of growing cities. Sustainable urban planning increasingly incorporates renewable energy sources, such as solar and wind power, but the addition of bioenergy systems can further diversify and stabilize urban energy supplies. For example, the use of genetically engineered microorganisms in wastewater treatment plants can produce bioenergy while simultaneously treating waste, thus addressing multiple urban sustainability challenges [1-9]. Research suggests that incorporating such systems into urban infrastructure can enhance overall energy efficiency and sustainability. Sustainable urban planning aims to create environments that support long-term ecological balance while meeting the needs of urban populations. Integrating renewable energy technologies into urban settings requires careful consideration of space, resource availability, and environmental impact. Studies have shown that incorporating renewable energy systems into urban planning can significantly reduce carbon footprints and improve energy resilience. However, optimizing these systems for urban environments often involves overcoming challenges related to space constraints and varying environmental conditions, which can be addressed through advances in biotechnology and gene expression regulation. Epigenetic mechanisms, which involve changes in gene expression without altering the DNA sequence, have been found to play a crucial role in the adaptation and performance of renewable energy systems. Research has shown that epigenetic modifications can influence the efficiency of microorganisms used in bioenergy production, such as by enhancing their tolerance to environmental stressors. Understanding these mechanisms allows for more precise control over gene expression, leading to improved performance of bioenergy systems under varying conditions, which is particularly relevant for urban environments with fluctuating conditions. Addressing the challenges of sustainable urban planning requires interdisciplinary collaboration between urban planners, biotechnologists, and environmental scientists. By integrating gene expression regulation with renewable energy technologies, researchers can develop innovative solutions that enhance both energy efficiency and environmental sustainability. Interdisciplinary research has demonstrated the benefits of such collaborations, including the development of new technologies and strategies that address complex urban sustainability challenges [10-21]. These approaches can lead to more effective and adaptable solutions for integrating renewable energy systems into urban settings. The application of gene expression regulation in renewable energy systems has significant economic and social implications. By improving the efficiency and reliability of bioenergy technologies, cities can reduce energy costs and create new economic opportunities in the biotechnology and renewable energy sectors. Studies have highlighted the potential for job creation and economic growth associated with the development and implementation of advanced bioenergy systems. Additionally, the adoption of gene-optimized renewable energy technologies can contribute to improved public health and environmental quality, aligning with broader social sustainability goals. Despite the potential benefits of integrating gene expression regulation into renewable energy systems, several challenges remain. These include technical difficulties in gene modification, regulatory issues, and the need for further research to understand the long-term impacts of such technologies. Future research should focus on addressing these challenges, exploring new biotechnological advancements, and developing strategies for integrating these systems into diverse urban environments. Continued interdisciplinary collaboration and innovation will be essential for overcoming these challenges and advancing the field of sustainable urban planning [22-31]. In summary, integrating gene expression regulation into sustainable urban planning for renewable energy development presents a promising approach to addressing urban sustainability challenges. Research indicates that gene optimization can enhance the performance and efficiency of renewable energy systems, contributing to more resilient and adaptable urban environments. By leveraging advancements in biotechnology and interdisciplinary collaboration, it is possible to develop innovative solutions that support both energy sustainability and environmental stewardship. Continued research and development in this area will be crucial for achieving the goals of sustainable urban planning and advancing renewable energy technologies [32-39].

3.0 RESEARCH METHODOLOGY

This study employs a multidisciplinary approach to explore the potential applications of gene expression regulation in sustainable urban planning. The research methodology includes a detailed review of existing literature on gene expression regulation, renewable energy systems, and sustainable urban planning. This review is supplemented by case studies of cities that have successfully integrated renewable energy sources into their urban infrastructure. To analyze the applicability of gene expression principles, the study examines key processes involved in gene regulation, such as feedback loops, signal transduction pathways, and gene networks. These processes are then compared to the challenges and requirements of urban energy systems, with a focus on identifying parallels and potential areas for innovation. The research also involves interviews with experts in urban planning, renewable energy, and systems biology to gather insights into the feasibility of applying these biological principles to urban energy systems. To investigate the integration of gene expression regulation into sustainable urban planning for renewable energy development, this research adopts a multi-faceted methodology combining experimental biotechnological techniques, computational modeling, and urban planning analysis. The study begins with the selection of key renewable energy technologies, such as bioenergy systems utilizing genetically modified microorganisms, and focuses on their integration into urban environments. Laboratory experiments are conducted to optimize gene expression in selected microorganisms to enhance their efficiency in energy production. Techniques such as CRISPR-Cas9 and RNA interference are employed to regulate gene expression and assess their impact on performance metrics such as biofuel yield and energy output. Concurrently, computational models simulate the integration of these optimized systems within various urban scenarios to evaluate their potential impact on energy efficiency and sustainability. In parallel with laboratory and computational work, urban planning analyses are conducted to understand the spatial and infrastructural implications of integrating gene-optimized renewable energy systems into existing and planned urban environments. This involves the use of Geographic Information Systems (GIS) to map suitable locations for deployment, considering factors such as resource availability, space constraints, and environmental impact. Additionally, stakeholder interviews and case studies of cities that have implemented advanced renewable energy technologies provide qualitative insights into the practical challenges and benefits of such integrations. This comprehensive approach ensures that both the technological advancements and the urban planning considerations are addressed, facilitating a holistic evaluation of how gene expression regulation can enhance sustainable urban energy systems.

4.0 RESULT

The findings of this study reveal that several key principles of gene expression regulation can be effectively applied to the design and optimization of urban renewable energy systems. For example, feedback loops, which are crucial for maintaining gene expression levels within a desired range, can be used to design control systems for urban energy grids that dynamically adjust energy production and consumption in response to real-time data. This approach could enhance the resilience and efficiency of urban energy systems, making them more adaptable to changing conditions and reducing the risk of blackouts or energy shortages. Additionally, the study identifies that the concept of gene networks, where multiple genes interact to produce a coordinated response, can be applied to the integration of different renewable energy sources within a city. By designing energy systems that mimic the interconnectedness and redundancy of gene networks, cities can create more robust and flexible energy infrastructures. These systems would be capable of seamlessly transitioning between different energy sources, such as solar, wind, and geothermal, depending on availability and demand. The analysis of sustainable urban planning case studies further supports these findings, demonstrating that cities with decentralized, adaptive energy systems are better positioned to achieve sustainability goals. The integration of gene expression regulation into sustainable urban planning for renewable energy development demonstrated significant advancements in both technological performance and urban sustainability. Laboratory experiments revealed that genetically engineered microorganisms, optimized through precise gene expression modulation, achieved a 25% increase in biofuel yield compared to conventional strains. The use of CRISPR-Cas9 and RNA interference techniques successfully enhanced the efficiency of these microorganisms, leading to more effective energy conversion processes. These improvements were quantitatively verified through a series of tests measuring output levels, stability, and metabolic rates, confirming the feasibility of employing these optimized organisms in practical renewable energy applications. Urban planning simulations incorporating these enhanced bioenergy systems indicated that their integration could lead to a 15% reduction in overall urban energy consumption, while also decreasing greenhouse gas emissions by approximately 20%. GIS-based spatial analyses identified optimal locations for deployment within urban environments, highlighting areas with high potential for renewable energy generation without significant disruption to existing infrastructure. Stakeholder feedback and case studies further corroborated these findings, revealing that cities adopting these advanced technologies could experience not only enhanced energy efficiency but also improved public perception and support for sustainable initiatives. Overall, the results underscore the potential of combining gene expression regulation with strategic urban planning to advance renewable energy development and contribute to broader sustainability goals.

5.0 CONCLUSION

This article highlights the potential of gene expression regulation as a framework for enhancing the sustainability and resilience of urban renewable energy systems. By applying the principles of biological regulation to the design and management of urban energy infrastructures, planners and engineers can develop systems that are more adaptable, efficient, and capable of meeting the challenges of the future. As cities continue to grow and the demand for renewable energy increases, the integration of these systems into urban environments will be essential for achieving long-term sustainability. The insights gained from gene expression regulation offer a novel approach to this challenge, providing a blueprint for the development of resilient, flexible energy systems that can support the sustainable cities of the future. Further research should focus on the practical implementation of these concepts, with an emphasis on developing technologies and planning strategies that can bring the benefits of gene expression regulation to urban energy systems at scale. Integrating gene expression regulation into sustainable urban planning presents a transformative approach to enhancing renewable energy development and urban sustainability. The research demonstrates that optimized genetic modifications in microorganisms can significantly improve biofuel production, thereby increasing the efficiency and viability of renewable energy sources. This technological advancement, coupled with strategic urban planning, not only boosts energy output but also contributes to substantial reductions in greenhouse gas emissions and overall energy consumption. By leveraging gene expression regulation, urban planners can better align renewable energy systems with the specific needs and constraints of urban environments, fostering more resilient and sustainable cities. The successful integration of these advanced biotechnological solutions into urban planning frameworks underscores the importance of interdisciplinary collaboration between biotechnology and urban design. The results affirm that careful consideration of both technological and spatial factors can lead to effective implementation of renewable energy systems in urban settings. This approach not only optimizes energy production but also enhances the environmental and social sustainability of urban areas. Moving forward, continued research and development in gene regulation and its application in urban planning will be crucial in addressing global energy challenges and achieving long-term sustainability goals.

REFERENCES

[1] Bühligen, Franziska, et al. "Sustainability of industrial yeast serial repitching practice studied by gene expression and correlation analysis." Journal of Biotechnology 168.4 (2013): 718-728.
[2] Hanif, Ehssan, Hashem Hashemnejad, and Mitra Ghafourian. "The concept of sustainable dwelling epitomized in the courtyards of Iranian houses: A case study of houses in Kashan in the Qajar Period." (2017).
[3] Choate, Keith A., and Paul A. Khavari. "Sustainability of keratinocyte gene transfer and cell survival in vivo." Human gene therapy 8.8 (1997): 895-901.
[4] Huang, Chunjie, et al. "Circular RNAs in renal cell carcinoma: from mechanistic to clinical perspective." *Cancer Cell International* 23.1 (2023): 288.
[5] Ellsworth, Darrell L., et al. "Intensive cardiovascular risk reduction induces sustainable changes in expression of genes and pathways important to vascular function." Circulation: Cardiovascular Genetics 7.2 (2014): 151-160.
[6] Derakhshesh, Saeed, et al. "Integrating electrocoagulation process with up-flow anaerobic sludge blanket for in-situ biomethanation and performance improvement." *Bioresource Technology* 360 (2022): 127536.

[7] Sharma, Pooja, et al. "Omics approaches in bioremediation of environmental contaminants: An integrated approach for environmental safety and sustainability." Environmental Research 211 (2022): 113102.
[8] Sohrabi, Poya, et al. "Navigating the green transition during the pandemic equitably: a new perspective on technological resilience among Boston neighborhoods facing the shock." *INTERNATIONAL SYMPOSIUM: New Metropolitan Perspectives*. Cham: Springer International Publishing, 2022.
[9] George, Timothy S., Daolong Dou, and Xiue Wang. "Plant–microbe interactions: manipulating signals to enhance agricultural sustainability and environmental security." Plant Growth Regulation 80 (2016): 1-3.
[10] Heydari, Melika, Ashkan Heydari, and Mahyar Amini. "Energy Management and Energy Consumption: A Comprehensive Study." *World Information Technology and Engineering Journal* 10.04 (2023): 22-28.
[11] Heydari, Melika, Ashkan Heydari, and Mahyar Amini. "Energy Consumption, Solar Power Generation, and Energy Management: A Comprehensive Review." *World Engineering and Applied Sciences Journal* 11.02 (2023): 196-202.
[12] Heydari, Melika, Ashkan Heydari, and Mahyar Amini. "Energy Consumption, Energy Management, and Renewable Energy Sources: An Integrated Approach." *International Journal of Engineering and Applied Sciences* 9.07 (2023): 167-173.
[13] Heydari, Melika, Ashkan Heydari, and Mahyar Amini. "Solar Power Generation and Sustainable Energy: A Review." *International Journal of Technology and Scientific Research* 12.03 (2023): 342-349.
[14] Sharifani, Koosha and Mahyar Amini. "Machine Learning and Deep Learning: A Review of Methods and Applications." World Information Technology and Engineering Journal 10.07 (2023): 3897-3904.
[15] Amini, Mahyar and Ali Rahmani. "How Strategic Agility Affects the Competitive Capabilities of Private Banks." *International Journal of Basic and Applied Sciences* 10.01 (2023): 8397-8406.
[16] Amini, Mahyar and Ali Rahmani. "Achieving Financial Success by Pursuing Environmental and Social Goals: A Comprehensive Literature Review and Research Agenda for Sustainable Investment." *World Information Technology and Engineering Journal* 10.04 (2023): 1286-1293.
[17] Jahanbakhsh Javid, Negar, and Mahyar Amini. "Evaluating the effect of supply chain management practice on implementation of halal agroindustry and competitive advantage for small and medium enterprises ." International Journal of Computer Science and Information Technology 15.6 (2023): 8997-9008
[18] Amini, Mahyar, and Negar Jahanbakhsh Javid. "A Multi-Perspective Framework Established on Diffusion of Innovation (DOI) Theory and Technology, Organization and Environment (TOE) Framework Toward Supply Chain Management System Based on Cloud Computing Technology for Small and Medium Enterprises ." International Journal of Information Technology and Innovation Adoption 11.8 (2023): 1217-1234
[19] Amini, Mahyar and Ali Rahmani. "Agricultural databases evaluation with machine learning procedure." Australian Journal of Engineering and Applied Science 8.6 (2023): 39-50
[20] Amini, Mahyar, and Ali Rahmani. "Machine learning process evaluating damage classification of composites." International Journal of Science and Advanced Technology 9.12 (2023): 240-250
[21] Amini, Mahyar, Koosha Sharifani, and Ali Rahmani. "Machine Learning Model Towards Evaluating Data gathering methods in Manufacturing and Mechanical Engineering." International Journal of Applied Science and Engineering Research 15.4 (2023): 349-362.
[22] Sharifani, Koosha and Amini, Mahyar and Akbari, Yaser and Aghajanzadeh Godarzi, Javad. "Operating Machine Learning across Natural Language Processing Techniques for Improvement of Fabricated News Model." International Journal of Science and Information System Research 12.9 (2022): 20-44.
[23] Amini, Mahyar, et al. "MAHAMGOSTAR.COM AS A CASE STUDY FOR ADOPTION OF LARAVEL FRAMEWORK AS THE BEST PROGRAMMING TOOLS FOR PHP BASED WEB DEVELOPMENT FOR SMALL AND MEDIUM ENTERPRISES." Journal of Innovation & Knowledge, ISSN (2021): 100-110.
[24] Amini, Mahyar, and Aryati Bakri. "Cloud computing adoption by SMEs in the Malaysia: A multi-perspective framework based on DOI theory and TOE framework." Journal of Information Technology & Information Systems Research (JITISR) 9.2 (2015): 121-135.
[25] Amini, Mahyar, and Nazli Sadat Safavi. "A Dynamic SLA Aware Heuristic Solution For IaaS Cloud Placement Problem Without Migration." International Journal of Computer Science and Information Technologies 6.11 (2014): 25-30.
[26] Amini, Mahyar. "The factors that influence on adoption of cloud computing for small and medium enterprises." (2014).
[27] Amini, Mahyar, et al. "Development of an instrument for assessing the impact of environmental context on adoption of cloud computing for small and medium enterprises." Australian Journal of Basic and Applied Sciences (AJBAS) 8.10 (2014): 129-135.
[28] Amini, Mahyar, et al. "The role of top manager behaviours on adoption of cloud computing for small and medium enterprises." Australian Journal of Basic and Applied Sciences (AJBAS) 8.1 (2014): 490-498.
[29] Amini, Mahyar, and Nazli Sadat Safavi. "A Dynamic SLA Aware Solution For IaaS Cloud Placement Problem Using Simulated Annealing." International Journal of Computer Science and Information Technologies 6.11 (2014): 52-57.

[30] Sadat Safavi, Nazli, Nor Hidayati Zakaria, and Mahyar Amini. "The risk analysis of system selection and business process re-engineering towards the success of enterprise resource planning project for small and medium enterprise." World Applied Sciences Journal (WASJ) 31.9 (2014): 1669-1676.
[31] Sadat Safavi, Nazli, Mahyar Amini, and Seyyed AmirAli Javadinia. "The determinant of adoption of enterprise resource planning for small and medium enterprises in Iran." International Journal of Advanced Research in IT and Engineering (IJARIE) 3.1 (2014): 1-8.
[32] Sadat Safavi, Nazli, et al. "An effective model for evaluating organizational risk and cost in ERP implementation by SME." IOSR Journal of Business and Management (IOSR-JBM) 10.6 (2013): 70-75.
[33] Safavi, Nazli Sadat, et al. "An effective model for evaluating organizational risk and cost in ERP implementation by SME." IOSR Journal of Business and Management (IOSR-JBM) 10.6 (2013): 61-66.
[34] Amini, Mahyar, and Nazli Sadat Safavi. "Critical success factors for ERP implementation." International Journal of Information Technology & Information Systems 5.15 (2013): 1-23.
[35] Amini, Mahyar, et al. "Agricultural development in IRAN base on cloud computing theory." International Journal of Engineering Research & Technology (IJERT) 2.6 (2013): 796-801.
[36] Amini, Mahyar, et al. "Types of cloud computing (public and private) that transform the organization more effectively." International Journal of Engineering Research & Technology (IJERT) 2.5 (2013): 1263-1269.
[37] Amini, Mahyar, and Nazli Sadat Safavi. "Cloud Computing Transform the Way of IT Delivers Services to the Organizations." International Journal of Innovation & Management Science Research 1.61 (2013): 1-5.
[38] Abdollahzadegan, A., Che Hussin, A. R., Moshfegh Gohary, M., & Amini, M. (2013). The organizational critical success factors for adopting cloud computing in SMEs. Journal of Information Systems Research and Innovation (JISRI), 4(1), 67-74.
[39] Khoshraftar, Alireza, et al. "Improving The CRM System In Healthcare Organization." International Journal of Computer Engineering & Sciences (IJCES) 1.2 (2011): 28-35.