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III SCIENCE FAIR AND SCIENTIFIC EXHIBITION FROM UVA IN PARTNERSHIP WITH UECE – A TECHNICAL-SCIENTIFIC REPORT

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ABSTRACT:

The following report on the III Science Fair and Scientific Exhibition from the Universidade Estadual Vale do Acaraú (Acaraú Valley State University, UVA) in partnership with the Universidade Estadual do Ceará (Ceará State University, UECE), referring to the CNPq process No. 441619/2017-7, presents the results achieved in the conducting of the project entitled Science Fair and Scientific Exhibition: Scientific Development in the Semiarid Ceará, the product of the research conducted by students from the 9th grade of elementary school and the 1st and 2nd grades of high school from Ceará. The 95 papers, out of 105, composing this report came from schools in 28 state municipalities. The seven additional articles bring theoretical and methodological reflections to science. The research has five areas of knowledge composing it, namely environmental sciences and biotechnology, earth sciences, human sciences, pure science, and life sciences. Over the project course and in the interaction between university and school, the authors believe the research propagation can encourage the engaged students and others around them, causing knowledge to advance fast through the university. Besides, it is worth thanking the invaluable teachers' dedication and the CNPq support through the call CNPq/CAPES/MEC/MCTIC/SEPED No. 25/2017 science fairs and scientific exhibition.

Keyword: Science Fair. School Community. Development.

RESUMO

O relatório aqui presente da III Feira de Ciências e Mostras Científicas da Universidade Estadual Vale do Acaraú/UVA, em parceria com a Universidade Estadual do Ceará/UECE, referente ao Processo: 441619/2017-7, do CNPq, apresenta os resultados alcançados na realização do projeto intitulado "Feira de Ciências e Mostras Científicas: desenvolvimento científico no ambiente semiárido cearense", fruto das pesquisas realizadas pelos alunos do 9º ano do Ensino Fundamental e do 1º e 2º anos do Ensino Médio de escolas públicas do estado do Ceará. De um total de 28 municípios participantes, recebemos 105 pesquisas, das quais selecionamos 95 para compor essa obra. Somaram-se a estas 7 artigos que trazem reflexões teóricas e metodológicas para a ciência. As pesquisas foram divididas em cinco áreas do conhecimento, a saber: Ciências Ambientais e Biotecnologia; Ciências da Terra; Ciências Humanas; Ciência Pura e Ciências da Vida. No decorrer do projeto e no convívio entre a Universidade e a Escola, espera-se que a divulgação das pesquisas, possa contribuir em estimular, ainda mais, os alunos envolvid os e os que os rodeiam, em pleitear o avançar no conhecimento, em curso prazo, em fazê-lo através da Universidade. Isto posto, agradecemos a dedicação e o saber dos professores envolvidos e o apoio do CNPq por instituir recursos através da Chamada CNPq/CAPES/MEC/MCTIC/SEPED Nº 25/2017 Feiras de Ciências e Mostras Científicas.

Palavra chaves: Feira de Ciências, Comunidade Escolar, Desenvolvimento

PRESENTATION

UVA comes endorsed by experience for the 3rd edition of its science fair. In 2013, Sobral held the 1st Science Fair and Scientific Exhibition: Scientific and Cultural Development in the Semiarid Environment, referring to the University, Education and Social Development Program. Soon after, the 2nd fair took place and, just like the previous one,

at a municipal level and in partnership with the Conselho Nacional do Desenvolvimento Científico e Tecnológico (National Council for Scientific and Technological Development, CNPq).

The following report on the III Science Fair and Scientific Exhibition from the Universidade Estadual Vale do Acaraú (Acaraú Valley State University, UVA) in partnership with the Universidade Estadual do Ceará (Ceará State University, UECE), referring to the CNPq process No. 441619/2017-7, presents the results achieved in the conducting of the project entitled Science Fair and Scientific Exhibition: Scientific Development in the Semiarid Ceará, the product of the research conducted by students from the 9th grade of elementary school and the 1st and 2nd grades of high school from Ceará. The 95 papers, out of 105, composing this report came from schools in 28 state municipalities. The seven additional articles bring theoretical and methodological reflections to science. The research has five areas of knowledge composing it, namely environmental sciences and biotechnology, earth sciences, human sciences, pure science, and life sciences. Over the project course and in the interaction between university and school, the authors believe the research propagation can encourage the engaged students and others around them, causing knowledge to advance fast through the university. Besides, it is worth thanking the invaluable teachers' dedication and the CNPq support through the call CNPq/CAPES/MEC/MCTIC/SEPED No. 25/2017 science fairs and scientific exhibition.

The project aims to foster knowledge in innovation, science and technology, and culture, associating scientific research in multiple areas and awakening to the reality of the semiarid region. Its scope involved students from elementary and high school from public schools in the municipality of Sobral (CE). In total, throughout the events, approximately 400 students were present.

The establishment of partnerships during the project, such as with the Coordenadoria Regional de Desenvolvimento da Educação (Regional Coordination of Education Development, 6th CREDE), enabled access to schools and encouraged teachers. Among the actions, it is worth reinforcing that the nature of the events encourages students to participate in schoolwork to acquire scientific knowledge. Besides, it gives schools a source to elaborate didactic material for their laboratories already set up or in the construction phase.

Therefore, continuing the project in its 3rd edition is appropriate. At the moment, the intention is to expand the area of coverage to the state level. The boldness is proper since UVA covers 60 municipalities, which means 30% of Ceará, and also because Sobral is a university town. Along with the support given by the 6th CREDE, the event counted on UECE endorsement.

The Research and Extension Group on the Semiarid Environment, experienced in science fairs according to FALCÃO SOBRINHO et al. (2014; 2015), and the UVA undergraduate and master's degree courses will assume the mission of bringing together the schools to reflect the state reality through research and innovative practices to the development of society.

JUSTIFICATION

Students present their projects, which they have prepared and carried out over the school year, during the science fairs. On it, they present works in which they spent several hours studying, investigating, searching for information, gathering data, and interpreting. Then they systematize everything to present to people or build manual or technological devices (MEC, 2006).

Also, according to the Ministério da Educação (Ministry of Education, MEC) (2006), scientific fairs and exhibitions insert students in a scientific initiation called Junior, which is practical and seeks technical and methodological solutions to problems that they try to solve.

The scientific initiation is an instrument that introduces students to scientific research. It relies on theoretical and methodological foundations to carry out a project, whether it is an individual or collective initiative.Therefore, science fairs and scientific exhibitions, along with research, awaken the scientific vocation of students through participation in projects and under the guidance of a qualified professional.

According to Hartmann and Zimmermann (2009), school events such as science fairs can foster the scientific initiation in elementary and high schools since it requires students to plan, prepare, perform and present their projects.

According to the authors, during the development of the required steps, the students must observe, investigate, and build some technological or scientific artifacts. Therefore, they make science already in elementary and high schools.

The science fairs are instruments that arouse the curiosity and interest of students, allowing exchange and amplification of learning. The fairs are fundamental as mobilizers of scientific production by the students since the expectation of exhibiting an original promotes a commitment to the quality of the knowledge, as explained by Lima (2008).

It is worth mentioning that developing research in public schools is complicated mainly because of structural challenges, as Tsai (2003) states. The problem has the following justifications: unavailability or quality of material, too many students in a classroom, improper teacher training, lack of literature, lack of time for classes, and laboratory availability.

Seeking to contribute to the development of research in the public schools in Ceará, the Research and Extension Group on the Semiarid Environment, registered in CNPq and anchored at UVA, proposed the project Science Fair and Scientific Exhibition at the state level. The project aims to develop the practice of scientific initiation in public elementary and high schools, encouraging the local reality through science fairs and scientific exhibitions. Therefore, it adopted the theme of scientific development in the semiarid environment and its surroundings. As Chassot (2003) states, the fairs give men and women the opportunity to read the world where they live.

METHODOLOGY

Advertising

- The release of a public notice through UVA prorectorate containing information, norms, analysis procedures, and institutional formalities according to UVA and CNPq.

- The disclosure occurred on the UVA, Ceará Secretary of Education, and Secretary of Science and Technology official websites.

- There were face-to-face advertisements in all the CREDEs and some schools.

- Announcement on banners in the schools.

- Publicity on the radio.

Amount of enrollments

Around 900 teenagers will be in the project since there is no limit to enrollment.

Target audience

Group students who are in the 9th grade from elementary school and in the 1st and 2nd grades from high school.

School participation rules

- The school presented research work developed by its students with the guidance of tutors or researchers (professionals, research fellows, among others).

- Groups of up to three students. Each project requires the participation of a teacher in the team.

Project knowledge areas

The projects to be presented must be in the following categories:

(a) Life science projects; (b) Environmental science and biotechnology projects; (c) Humanities projects; (d) Earth science projects; and (e) Pure science projects.

Benefit:

- The school of the winning students will receive trophies.

- All participants in the 3rd phase will receive certificates.

- Selection of the two best projects from each knowledge area.

- From the two selected projects, four students from each knowledge area will get a junior scientific initiation scholarship from CNPq.

- The selection criteria were an interview with the advisor teacher and then with the student discussing the theme presented by the team.

- The scholarship value is R$100,00 for 12 months paid by CNPq in the selected student's bank account, according to CNPq's announcement.

- The project coordination and advisor teacher assisted the selected student to continue the research for over a year.

- The advisor teacher received a certificate of 100 hours.

PERIOD FOR THE PRESENTATION OF PAPERS:

1st phase – Selection of 20 papers from each area of knowledge through the projects delivered at the time of registration.

2nd phase – It took place in the second semester of 2018 at the Universidade Estadual Vale do Acaraú (UVA), in Sobral/Ceará, and at the Universidade Estadual do Ceará (UECE), in Fortaleza.

Criteria for project evaluation

The selected projects contained scientific, technological, cultural, environmental, and social relevance related to the call theme.

The projects must be under the norms defined by the scientific committee.

Pre-fair corresponds to the intention of the school to participate. It is done through a specific document, committing and accepting the rules established in the call.

In the 1st phase, the selection committee – made up of UVA and UECE professors and master degree students – will select the projects according to the following criteria:

a) Relationship with the theme of the event - (0-10 points);

b) Creativity and innovation - (0-10 points);

c) Scientific-theoretical knowledge of the addressed problem - (0-10 points);

d) Scientific methodology - (0-10 points);

e) Depth of research - (0-10 points);

f) Social and environmental relevance - (0-10 points)

g) Investigative character - (0-10 points);

h) Appropriateness to the exhibitors' school level - (0-10 points).

In the 2nd phase, the projects selected in the 1st phase were presented orally. A selection committee – made up of teachers and students from UECE, other higher education institutions, and the Secretary of Education – evaluated the projects obeying the criteria already established previously and adding:

(i) Scientific knowledge of the addressed problem - (0-10 points);

j) Clarity and objectivity in the presentation of the work - (0-10 points);

l) Exhibitor's performance during the presentation of the project - (0-10 points).

EXPECTED PRODUCTS

The production of a journal contemplated the projects selected in the 3rd phase.

3RD STAGE

There were visits to the CREDEs and some municipalities. In this way, the contact with teachers boosted the activities.

4TH STAGE

Throughout the release of the call and during the activities, joint meetings took place with the working team from UVA and UECE. The team was also present in person.

RESULTS:

5TH STAGE – Receipt of applications

The received projects went to the thematic axes.

SCHOOLS PARTICIPATING IN THE III UVA SCIENCE FAIR ACCEPTED PROPOSALS

ENVIRONMENTAL AND BIOTECHNOLOGICAL SCIENCES

ENVIRONMENTAL AND BIOTECHNOLOGICAL SCIENCES			
School	**Municipality**	**Participants**	**Project title**
EEMTI Dr. João Almir de Freitas Brandão	São Benedito	**Teacher Graziela Antônia Gonçalves** Students: Emanuele de Melo Sousa; José Ivanilson da Silva; Maria Gleiciane Pereira da Silva.	Living Land Project
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Sarah Silva Queiroz; Maickon Brenner Marques Brandão.	Afforestation of Itarema with Native Caatinga Species: An Ecological Action Needed to Replace Azadirachta Indica.
EEEP Guiomar Belchior Aguiar	Cariré	**Teacher Antônia Elaine Frutuoso Lima** Students: Lívia Cotrim Rodrigues; Ciliane Ferreira de Aquino; Cillas Ferreira Damasceno.	Identification of Environmental Aspects and Impacts Generated in a Full-Time School
EEEP Guiomar Belchior Aguiar	Cariré	**Teacher Cícero Eudes da Silva** Students(2): Artur Marques de Freitas; Augusto Angelo Silva Mesquita; Jorge Guilherme Silva Melo.	Analysis and Search for Water Resources in Carnaubais Domains in the Municipality of Cariré – CE
EEMTI Valdo Vasconcelos Rios	Itarema	**Teacher Francisco Ageu Ribeiro do Nascimento** Students: Antônia Jéssica Gomes Furtado; Lila Rane Santos Furtado.	Getting to Know the Lagamar to Conserve Itarema Natural Riches
EM José Parsifal Barroso	Fortaleza	**Teacher Ana Paula Souza do Nascimento** Students: Lucas de Sousa Vieira; Hítalo Hudyson Feitosa Paiva; Pâmela de Sousa Barros.	Environmental Entrepreneurship
EMTI Prof. Joaquim Francisco de Sousa Filho	Fortaleza	**Teacher André Luis Bezerra da Silva Brasilino** Students: Luís Davi Oliveira do Nascimento; Carla Vitória da Costa Alves.	Alternative methods to reduce water pollution.
EEM Paulo Freire	Mombaça	**Teacher Francisco Ronaldo Belém Fernandes m** Students: Vanildo Silva Cordeiro; Rozilande Paulino Vieira; Gesica Rozileide dos Santos.	Use of Green Pits as a Component for Sanitation and Sustainable Rural Development in Rural Settlements
EEM Paulo Freire	Mombaça	**Teacher Francisco Nasciso Faustino Guedes** Students: Willian Gabriel da Silva; Francisca Geovanna Silva Pereira; Antônia Verônica da Silva.	Disposing of Sewage and Waste the Right Way

EEM Francisca Pinto dos Santos	Ocara	**Teacher Francisco Leandro Santos Dantas** Student: Gabriel Cosme Maia	Manual mini peeling chestnut machine
EEM Julia Alenquer Fontenele	Pindoretama	**Teacher Anilton Nogueira de Matos Filho** Students: Jean Vitor Pereira Gonçalves; Pedro Emanuel Tiodózio Lopes.	BIOCAR - Biofuel Production Using Carnauba (Copernicia Prunifera) as Raw Material.
EEM Julia Alenquer Fontenele	Pindoretama	**Teacher Anilton Nogueira de Matos Filho** Students: Vitor Holanda Lima; Francisco Edgleico Monteiro Benício.	BioNat - Natural Biomass based on Salvinia auriculata Aubl for the treatment of oil spills in tributaries.
EEM Dr. José Euclides Ferreira Gomes Júnior	Sobral	**Teacher Monique da Ponte Ribeiro** Students: Emerson Liberato de Souza; Thais dos Santos Monteiro.	Homemade Mini Biodigester
EEEP Lysia Pimentel Gomes Sampaio Sales	Sobral	**Teacher Jacinto de Lima Farias** Students: João Vitor Feijão da Silva; Yago Vasconcelos de Araújo; Francisco Davi da Silva Sales	Biogas Utilization for Water and Power Generation
Escola de Ensino Médio de Irauçuba	Irauçuba	**Teacher Fabrício Mota Gonçalves** Students: Ana Beatriz Guilherme Santana; Verônica Ávila Pinheiro.	Irgatec System: Rational Use of Water.
Escola Dona Marieta Cals.	Cariré	**Teacher Antônia Geovânia Rodrigues do Nascimento.** Students: Maria Rafaela Camaos; Maria Gabriela Mesquita do Nascimento; Hellen Beatriz Martins Braga.	The Use of Remote Sensing to Analyze the Levels of Degradation of the Acaraú River.
Escola Dona Marieta Cals.	Cariré	**Teacher Antônia Geovânia Rodrigues do Nascimento.** Students: Maria Assucena Mesquita Ximenes; Ana Gabriela Parente da Ponte; Laíssa Rodrigues Carvalho.	The River That Pulsates in Us
Escola Dona Marieta Cals.	Cariré	**Teacher Antônia Geovânia Rodrigues do Nascimento.** Students: Beatriz Aguiar Carvalho; Geizinelly Pinto Araújo; Joyce Smões de Oliveira.	Locate to Preserve: Using Google Earth For Environmental Awareness.
EEEP Joaquim Moreira de Sousa	Fortaleza	**Teacher Glaylsson de Freitas.** Students: Maria Jéssica de Mesquita Oliveira; Anthony da Silva.	Biofilter
EEEP Joaquim Moreira de Sousa	Fortaleza	**Teacher Vanessa Glecia Ribeiro de Lima** Students: Maria Clarisse Bezerra; Mickael Victor Nascimento Silva.	Robotics: Electronic Garbage
EEEP Joaquim Moreira de Sousa	Fortaleza	Students: Lívia Belchior Viana; Sarah Ketley Silva Sales; João Victor Saraiva de Sousa.	Sustainable Robotics

EM Dom Aloísio Lorscheider	Fortaleza	**Teacher Lucas de Sousa Ribeiro** Students: Vitor Emanuel Lemos; Francisco Victor Barros.	"Re" Discovering Pancs: Promoting Science Dissemination as a Tool for Accessing Healthy Food.
EEFM Professor Arruda	Sobral	**Teacher Francisco Mário Nascimento Meneses** Students: Deyson Dayllon Lima dos Santos; Wendel Rodrigues da Silva; Pedro Guilherme Torres da Silva; Francisco José Cavalcante Ribeiro.	Implementation of a sustainable vegetable garden and the Impacts on EEFM Professor Arruda
EEFM Professor Arruda r	Sobral	**Teacher David Torres de Sousa** Students: Ana Clara do Nascimento da Vida Silva; Emanuella Pereira Araújo; Maria Adrielle Linhares do Nascimento.	Preliminary Survey of the Diurnal Entomofauna in the Salgado dos Machados District.
José Inácio Gomes Parente	Sobral	**Teacher José Nelson do Nascimento Neto.** Students: Joel Sousa dos Santos; Samuel Silva dos Santos; Maycon Douglas Melo dos Santos.	Environmental Impacts of the Jordão Dam Surroundings, Sobral - CE
EEMTI Prof. Joaquim Francisco de Sousa Filho.	Fortaleza	**Teacher André Luiz B. da Silva Brasilino** Students: Danilo Bezerra dos Santos; Melissa Elen Bonifácio de Araújo	A mathematical approach to the study of photosynthesis.

SCHOOLS PARTICIPATING IN THE III UVA SCIENCE FAIR ACCEPTED PROPOSALS

HUMAN SCIENCES

HUMAN SCIENCE			
School	**Municipality**	**Participants**	**Project title**
EEEP Francisca Maura Martins	Hidrolândia	**Teacher Ana Célia Abreu Tomé**. Students: Francisca Vivian da Silva Feijão; Francisca Karlane Braga Paiva; Sollene Peres Martins.	Those who love care: Avoid leishmaniasis
EEEP Francisca Maura Martins	Hidrolândia	**Teacher Antônio Marcello Bezerra Mororó** Students: Amanda Gomes Oliveira; Maria Emanuella Martins Marinho; Ruthianny Firmino de Lima.	My city, my place: Historical and social characterization.
EEEP Francisca Maura Martins	Hidrolândia	Students: Júlia Pereira Martins; Francisco Breno de Souza Azevedo; Rafaela Sousa Braga.	Web radio: Mix of integrative education students and society
EEEP Prof.ª. Rosângela Albuerque de Couto	Itarema	**Teacher Sitônio Coelho Miranda.** Students: Kammilly Vitória Araújo Aguiar; Vitória Ferino de Sena.	Black Rebelô

EEEP Prof.ª. Rosângela Albuerque de Couto	Itarema	**Teacher Sitônio Coelho Miranda.** Students: Mikele Maria de Sousa; Sabrina Irineo de Castro.	Patos: Ingenio or senzala, the story of a people behind a story.
EEEP Prof.ª. Rosângela Albuerque de Couto	Itarema	**Teacher Maria Rosane da Cruz.** Students: José Daniel de Sousa; José de Anchieta do Nascimento Albano.	Environmental impacts caused by real estate expansion on the island of Guajiru
EEMTI Marconi Coelho Reis	Cascavel	**Teacher Clodoaldo Monteiro Uchôa** Students: Bruna Estefan Pereira dos Santos; Lucas Benício de Lima.	Miscooked, from the river of the Carnijós Indians' cooking master to the harshness of the drought for environmental education and sustainable management for all of us.
EMTI Prefeito José Euclides Ferreira Gomes Júnior	Sobral	**Teacher Regina Célia Mariano Cristino** Students: Amanda Stefani Rodrigues da Silva; George Oliveira da Silva; Cecília Maria de Matos Vieira	English Connecting Cultures
EEM Gov. Luiz Gonzaga da Fonseca Mota	Quixadá	**Teacher Geyska Brito de Almeida** Students: Mirelly de Assis dos Santos; Antônia Vitória Vital de Paulo.	"Re" Knowing the Indian Site: Between stones and knowledge and the art of Alberto Porfirio.
EEM Paulo Freire	Monbaça	**Teacher Antônia Silverlânia Vieira de Sousa** Students: Rainária Brandão Silva; Thaís Rodrigues de Lima; Israel de Araújo Moreira.	Semiarid Ceará: The Consequences of the Water Crisis in the Agrarian Reform Settlements of the Municipality of Mombaça.
EEM José Claudio Araújo	Mucambo	**Teacher Sara Heline Rodrigues de Brito Silva e Teacher Suzana Alves de Melo** Students: Nara Cíntia Araújo Rodrigues; Ednaldo Neres Alcântara Rafael Lima Alves.	Participation and Citizenship: The Vote in the Context of the Human Sciences.
EEF Cefisa Aguiar	Cariré	**Teacher Eloísa Rocha Queiroz** Students: Micaele Braga Bastos; Gustavo Muniz de Oliveira; Antônio Gabriel Rocha Gerônimo.	Water Resources of Cariré
EEF Cefisa Aguiar	Cariré	**Teacher Eloísa Rocha Queiroz** Students: Micaele Braga Bastos; Renata Alerrandra Ribeiro Pinto.	Music and the Teaching of Geography
Escola Família Agrícola Jaguaribana	Tabuleiro do Norte	**Teacher Leandro Vieira Cavalcante** Students: Samara de Freitas da Silva; Paulo Vitor de Lima da Silva.	Contextualized education and living with the semiarid region: painting with soils in the construction of agro-ecology

EEEP Lysia Pimentel.	Sobral	**Teacher Bruna Mayra Fonseca Fernandes de Araújo** Students: Vitória Rodrigues dos Santos; Francisca Edielly Carneiro Araújo.	Cine Humanities Project
EEEP Lysia Pimentel.	Sobral	**Teacher Diana Kelly Alves Oliveira** Students: Matheus Alves Gabriel; Ana Clara de Carvalho Costa.	Reading Club: From Classics to Contemporary Art
EEEP Lysia Pimentel.	Sobral	**Teacher Ana Kércia Sousa Mariano** Students: Ivan Chrystian Gomes Ripardo; Nathanael Ferreira de Mendonça; Francisco Gabriel de Souza Mota.	The Construction of Mind Maps in Geography Teaching.
EEEP Lysia Pimentel.	Sobral	**Teacher Ana Kércia Sousa Mariano** Students: Débora Silva Alves; Maria Driénny Santos Nascimento; Maysa Ponte Melo.	The Deconstruction of Domestic Violence
EEEP Lysia Pimentel.	Sobral	**Teacher Isabel Maria Siqueira Brandão** Students: Alexsiana de Maria Sousa; Antônia Rayanne Lima da Silva	Theoretical framework and textual production.
EEFM Ministro Jarbas Passarinho	Sobral	**Teacher Maria Hortência e Teacher Cinira Ricardo Cordeiro** Students: Ana Kailany Ribeiro de Sousa; Ana Nara Rodrigues Lucas; Maikely Rita de Lima.	The Human Influence on the Dynamics of Sobral's Urban Microclimate
EEM Prof.ª Maria Edilce Dias Fernandes	Ibicuitinga	**Teacher Lídia Mara Lima Nobre** Students: Maria Eduarda Maia Girão; Islai Ellen Aguiar Maia.	The Perception of the Caatinga and the Hinterland Life
EEEPJoaquim Moreira de Sousa	Fortaleza	**Teacher Shirley Alencar** Students: Beatriz Catarina dos Santos Pirez; Anselmo Lopes de Araújo Neto; Isabelly Cavalcante Silva.	Nature through the eyes of Poetry
EEEPJoaquim Moreira de Sousa	Fortaleza	**Teacher Marcos Vinicios Barroso Rodrigues.** Students: Brenda Kailey de Sousa Costa; Ingrid Paloma Bittencourt da Silva; Steffany Rodrigues de Sousa.	Bioethics in the Hinterland.
EEEPJoaquim Moreira de Sousa	Fortaleza	**Teacher Francisco Juciler Marues Queiros Lima.** Students: Isaías Sousa Nunes; Camila Maria Sousa dos Santos; Claudiana Ferreira dos Santos.	Transformations in the Maracanaú Industrial Pole Landscape
EEM Maria Neusa Araújo Moura	Santa Quitéria	**Teacher Zacarias da Ponte Soares**	Me and Politics: A Report of an

		Students: Fernando Paiva Ximenes; Francisco Leandro Rodrigues Andrade; Kaio Freires Duarte	Experiment on Youth Protagonism
EEFM Dona Luíza Távora – PIO XII	Fortaleza	**Teacher Juliana Maria Mendes Homsi** Students: Ana Lia Sousa Pereira; Pedro Arthur Vasconcelos Rodrigues Sousa.	Speaking Place: Women who made Ceará's history.
Escola Municipal Frei Tito de Alencar Lima.	Fortaleza	**Teacher Francisco Bruno Dinis** Student: André Santos de Miranda	H1N1 Learn to Prevent.
EMTI Prof.ª Carmosina Ferreira Gomes	Sobral	**Teacher Ana Cristina Morais Balica Gomes/Milena Araújo de Sousa.** Students: Alisson Kildere Sousa Silva; Júlia Elen Sales Castro; Rosimeire Duarte Morais.	The Use of Interactive Games in the Study of Semiarid Environmental Degradation.
EMTI Maria Odete da Silva Colares	Fortaleza	**Teacher Filipe Helson Costa** Students: Ana Vitória Ferrreira Vasconcelos; Barbara Joyce Fernandes Rodrigues; Emilly Clares Madeira.	The Musicalization of Science: A New Teaching Method.
EEM Wilebaldo Aguiar	Massapê	**Teacher Fábio da Silva** Students: Geisson Tomé Alves; Ana Caline Lima Araújo.	Geographic Studies on Teenage Pregnancy in Massapê - CE
EEM Wilebaldo Aguiar	Massapê	**Teacher Fábio da Silva** Students: Antônio Hélio Vidal da Silva; José Alessandro Braz de Sena.	Traffic and Accessibility: A Discussion on Urban Mobility.
EEM Wilebaldo Aguiar	Massapê	**Teacher Fábio da Silva** Students: Messia Estivem; Joyce Carla de Lima; Maria Caroline Sousa Sales.	Gender at school: a necessary discussion.
EEM Wilebaldo Aguiar	Massapê	**Teacher Raquel Salvino Fernandes** Students: Nívia Vitória da Silva Farias; Raquel de Sousa Lima; Francisca Miliane Araújo de Lima.	Environmental Education as an Awareness-Building Tool for Reusing Solid Waste at the Wilebaldo Aguiar School in Massapê-CE
EEM de Campos Sales	Campos Sales	**Teacher Mariano de Oliveira Carvalho.** Students: Bárbara de Alencar Brito; Francisca Mylla Teles de Souza; Paulo Luy Vieira Mariano.	Research and Cartography: subsidies for didactic contextualization in Geography in the city of Campos Sales, Ceará.
EEM Monsenhor Furtado	Meruoca	**Teacher Francisco Edson da Costa** Students: Herik Douglas Oliveira Reinado; João Victor Sousa Tomáz; Raquel de Carvalho Conceição	From School Cartography to the Exploration of Living Space

EEM Monsenhor Furtado	Meruoca	**Teacher Francisco Edson da Costa** Students: Beatrys Bezerra Candido; Samara Costa Albuquerque; Paulo Evangelista Gomes Barbosa.	New Perspectives: Dialogues and Practices of Environmental Education in EEM Monsenhor Furtado - Meruoca/CE
EEEP Edson Queiroz	Cascavel	**Teacher Francisco De Assis Lima** Students: Katarine Silva de Paula; Francisco Sandro Vidal; Raynária Torres; Isnara Silva Holanda; Iasmin Mota; Aparício Railson; Ademir Dantas; Letícia Carvalho.	Hidracarú: blooming beyond the droughts.

SCHOOLS PARTICIPATING IN THE III UVA SCIENCE FAIR ACCEPTED PROPOSALS

PURE SCIENCES

PURE SCIENCES			
School	**Municipality**	**Participants**	**Project title**
EEM Maria Menezes Cristino	Coreaú	**Teacher Fábio Gomes de Lima** Students: Ediene Teles Félix; Gisele Portela Menezes	Technological Revolution
EEM Maria Menezes Cristino	Coreaú	**Teacher Fábio Gomes de Lima** Students: Aparecida Portela de Aguiar; Nairla Lima do Nascimento; Karoline Teles Sampaio.	Why are you afraid of mathematics?
EEFM Professor Arruda	Sobral	**Teacher Antônio Manoel da Silva Andrade** Students: José Renan Santos Viana Fernandes; Lúcia Rodrigues da Silva; Bruna Stefani Magalhães da Silva.	Math Casino
EEFM Professor Arruda	Sobral	**Teacher Cassilda Farias Sena** Students(2): Iris de Moraes Silva; Francisco Henrique Paulo Araújo; Driely Teixeira de Souza.	Application and Demonstration of Chemiluminescence in Everyday Activities
EEFM Professor Arruda	Sobral	**Teacher Evódia Pires Lopes** Students(3): Kildere Siqueira Miranda; Camilly Cruz Marques; Isadora Lirielly de Oliveira Aragão.	Astronomy Workshop: Construction of a Didactic and Sustainable Model of the Solar System

EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Helaine Cristina Nascimento dos Santos** Students: Pedro Rian Ribeiro Barbosa; Samuel Fernando Celestino Araújo.	Scientific Lual at School: Eye on the Sky
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Kaiani Krishna de Melo Godói.** Students: José Armando Júnior do Nascimento; Victor Emanuel Brandão dos Santos.	Insect controller robot in home environments.
EEM Julia Alenquer Fontenelle	Pindoretama	**Teacher Amilton Nogueira de Matos Silva** Students: Ednildo Ferreira dos Santos; João Vitor Rodrigues Sousa	BanCoP - Community Bank of Pindoretama: Experiences of Microfinance Solidarity in the Development of Community Banks.
EEEP Francisco das Chagas Vasconcelos	Santana do Acaraú	**Teacher Glauber Oliveira Benjamim** Students: Iara Kelly Penha; Mariana Canafístula da Penha	Manufacture of Alternative Products from Expanded Polystyrene (ESP) and Cashew Nut Liquor (CNS)
E M José Ramos Torres de Melo	Fortaleza	**Teacher Danielle de Lima Miná Águila** Students: Camilly Alves de Sousa; Yasmin Barros Souza	Magnetic Stirrer: The Simulation of a Whirlpool from the Action of “mãs”
E M José Ramos Torres de Melo	Fortaleza	**Teacher Danielle de Lima Miná Águila** Students: Carlos Eduardo dos Santos Lima Filho; Diego Fagundes Alves da Silva.	A Hockey Table Prototype as a Low-Cost Material.
E.E.F.M Ministro Jarbas Passarinho	Sobral	**Teacher Jamile Gomes de Sousa** Students: Ana Kécia da Silva Sales; Francisca Beatriz de Melo Nascimento.	Seed Paper
E.E.F.M Ministro Jarbas Passarinho	Sobral	**Teacher Jamile Gomes de Sousa** Students: (2): Enadiely da Silva Pinho Oliveira; Naiane de Sousa Braga	The Chemistry of Wine
EEEP Ícaro de Sousa Moreira	Fortaleza	**Teacher Francisco José Mendes dos Santos** Students: Nátali Gome Bandeira; Yasmin dos Santos Mangeth	Electrochemistry: A New Energy Awareness

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SCHOOLS PARTICIPATING IN THE III UVA SCIENCE FAIR ACCEPTED PROPOSALS

EARTH SCIENCE

EARTH SCIENCE			
School	**Municipality**	**Participants**	**Project title**
EEM Maria Menezes Cristino	Coreaú	**Teacher Fábio Gomes de Lima** Students: Antônio Teles Sampaio Júnior; Francisca Élida Tabosa Lima; Francisca Vanessa de Menezes Teles.	Mathematically Controlled Irrigated Perimeter.
EEEP Isaías Gonçalves Damasceno.	São Benedito	**Teacher Pedro Maciel Lopes da Silva** Students: Samuel Nepomuceno Pereira; Kaik Ribeiro de Paiva; Deusdedito Jonh de Mesquita Melo.	Eco-House Project - Sustainability
EEM do Campo Francisca Pinto dos Santos	Ocara	**Teacher Luís Carlos dos Santos** Students: Francisca Silviane Cesário Girão; Maria Thaís Queiróz de Lima.	Agroforestry System as a Food Strategy in the Caatinga Biome.
EEM do Campo Francisca Pinto dos Santos	Ocara	**Teacher Charles Lobo Pinheiro** Students(2): Maria Helen da Silva Mendes.	Solar dripper and the use of brackish water in vegetable irrigation.
EEEP Prof.ª Rosângela Albuquerque de Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students(1): Cleisla Kailane Sousa Costa; Ariane De Paula Dos Santos.	(1) Impact of Plastic Packaging on the Environment of a Coconut-growing Area in the City of Itarema.
EEEP Prof.ª Rosângela Albuquerque de Couto	Itarema	**Teacher Lucas Guilherme Silva** Students: Augusto Washington Gomes Martins; Artur Kauar Martins de Morais.	The Sun that desalinizes (Conversion of Solar Energy into Thermal)
EEMTI Dr. João Almir de Freitas Brandão	São Benedito	**Teacher Márcio Roberto Felisberto dos Santos** Students: Mickael Douglas Ferreira Lopes; Elías Willkerson Lopes Gomes.	Eco-thermal
E M Odilon Gonzaga Braveza	Fortaleza	**Teacher Sulivan Pereira Dantas** Students: Carla Alessandra Vieira dos Santos; Vanessa Maria Vasconcelos Fernandes; Maria Larissa Santos da Silva.	Time Zone Stamp
EEMTI Valdo de Vasconcelos Rios	Itarema	**Teacher Francisco Ageu Ribeiro do Nascimento** Students(1): Francisco Jonatas Xavier Dos Santos; Francisca Tamires Dos Santos	(1) Analysis of the Productive Potential of Camapu (Physalis Angulata) Fruits in the City of Itarema.
EEMTI Valdo de Vasconcelos Rios	Itarema	**Teacher Francisco Ageu Ribeiro do Nascimento** Students: Paula Leticia Dos Santos.	Study of the Economic Feasibility of Cultivating Aloe Vera for Small Rural

			Producers in the Municipality of Itarema
EEM Gov. Luiz Gonzaga da Fonseca Mota	Quixadá	**Teacher Francisca Antônia da Silva** Students: Francisca Layza Melo Dantas; Kailanny de Assis Maciel.	JPEC - A Permaculture Experience A Path to Sustainability
EEM Julia Alenquer Fontenelle	Pindoretama	**Teacher Diana Monteiro do Nascimento** Student: Isac Severo Rebolças Rocha	ARANHOLA - The Application of the Study of Educational Robotics to the Production of a Spider Prototype for Use in Agriculture.
EEM José Claudio Araújo	Mucambo	**Teacher Sara Heline Rodrigues de Brito Silva e Teacher Ana Cristina Azevedo Lima** Students: Josiane de Aquino Lima; Maria Gisele Almeida Silva; Francisco Jeferson M. de Araújo.	Agriculture: A Relationship from National to Local.
EEM Plácido Aderaldo Castelo	Pacujá	**Teacher Ana Cristina Azevedo Lima e Teacher Patrícia Alves da Silva** Students: Raisa Morais Lima Abreu; Pedro Henrique de Sousa Silva; Micaele Vieira da Silva.	The Brazilian Semi-arid: Public Policies and Coexistence
EEM Dr. José Euclides Ferreira Gomes Júnior	Sobral	**Teacher José Nelson do Nascimento Neto** Students: Angelina do Nascimento Souza; Francisco Rikelmo da Silva Sousa; Lucivânia Costa de Souza; Adielsar de Sousa Dias; Beatriz Sales Pereira.	Analysis of the Use of Plate Cisterns in the District of Jordão-Sobral/CE.
EEM Dr. José Euclides Ferreira Gomes Júnior	Sobral	**Teacher José Nelson do Nascimento Neto** Students: Maria Aparecida Silva Santas; Helber Mendonça Souza	Impacts of Seismic Shocks in the District of São Francisco, Jordão, Sobral, Ceará
EEFM Ministro Jarbas Passarinho	Sobral	**Teacher Cinira Ricardo Cordeiro e Teacher Maria Hortência Rodrigues Sousa** Students: José deuzimar Lima Magalhães; Everson Lima Ferraz; Francisco Elielton da Silva Fontenelle.	Sobral's Urbanization and the Degradation of the Middle Course of Acaraú River.
EEEP Joaquim Moreira de Sousa	Fortaleza	**Teacher Robério Costa da Silva** Students: Leilane Gomes de Lima; Thais Pimentel da Luz; Monalisa Florêncio Bessa	The use of vegetable fibers in the production of Bioplastic
EMTI Professor Alexandre Rodrigues de Albuquerque	Fortaleza	**Teacher Nadir Moura Vieira** Students: Kailanny de Lima Maia; Gabriel de Oliveira Andrade; Paulo Henrque Bastos.	A utilização de fibras vegetais na produção de Bioplásticos
EEEP Francisco das Chagas Vasconcelos	Santana do Acaraú	**Teacher Diego Gomes de Sousa** Students: José Moisés dos Santos; Matheus Allyson de Sousa Lopes.	Development of Bioplastics for Use in Packaging.

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SCHOOLS PARTICIPATING IN THE III UVA SCIENCE FAIR ACCEPTED PROPOSALS

LIFE SCIENCE

LIFE SCIENCE			
School	**Municipality**	**Participants**	**Project title**
EEFM Professor Arruda	Sobral - CE	**Teacher Danilo da Silva Florindo** Students: Cleane da Silva do Nascimento; Maria Janaína Pereira Siqueira; Weslainy keidiny Bezerra Carneiro.	Preliminary Survey of the Diurnal fauna in the Salgado dos Machados District.
EEM Waldir Leopércio	Varjota	**Teacher Nagiane Muniz Freitas** Students: Francisco Anderson de Sousa Sales; Jorge freire Vieira; Vitória Lívia da Silva Moraes.	School Herbarium: A Didactic Tool for Teaching Botany.
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Sally Mack de Oliveira Lima; Maria Cauani Silva Alves.	Study of the Feasibility of Garlic Cultivation, Aimed at Developing a New Economic Source for Itarema
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Vinicius Kayki Sousa Dos Santos; Carlos André Sales Júnior	Analysis of the Economic Feasibility of Avocado Germination Process for Cultivation in Itarema
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Kesia Goncalves Lima; Vitoria Caroline Mulato Santana.	Talking About Sex Education in the EEP
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Aila Kailanne Matos Dos Santos; Iago Ronald Alves Rodrigues	Oral Health Time in Public Schools: Students Applying Theory And Practice.
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Velk Junior Costa Marques; Évila Maria Vasconcelos De Araújo.	Study of the Ecological Viability of Cacti from the Brazilian Semiarid Region for Room Decoration
EEEP Prof.ª. Rosângela Albuquerque De Couto	Itarema	**Teacher Jardel Ribeiro Batalha** Students: Francisca Ingrid De Oliveira Costa; Giselle Suzy Souto Nunes; Jardel De Freitas Dias	Survey of butterfly diversity (Lepidoptera) in the municipality of Itarema
EEM Olímpio Sampaio da Silva	Uruoca	**Teacher Francisco Ferreira de Sousa Filho** Students: Luana de Paula Souza; Maria Laura Alves de Sousa; Roseane de Sena Araújo;	Geo-practicing: Dynamic Methodologies for the Learning of Geographic Knowledge in the Context of the Semiarid Landscape
EEEP Francisca Maura Martins	Hidrolândia	**Teacher Ana Célia Abreu Tomé** Students: Antônia Nadla Sousa Martins; Francisco Antônio David Alencar Veras; Francisca Gardenia de Sousa Carvalho.	Kefir - Wellness Grains

EEEP Francisca Maura Martins	Hidrolândia	**Teacher Ana Célia Abreu Tomé** Students: Jonhy Mileno Sousa Nascimento; Francisco Wilas Arauto de Sousa; Lucas Bezerra da Silva.	Moringa Oleifera - a complete structure of benefits
Colégio Estadual Don José Tupinanbá da Frota	Sobral	**Teacher Juliana Ramos da Silva** Students: Jaislane Maria de Oliveira Santos; Sheyla Paulino da Silva; Ana Carolayne Morais Silva.	Analysis of the pH of intimate soaps used by women at Dom José Tupinambá da Frota High School.
EEM Gov. Luiz Gonzaga da Fonseca Mota	Quixadá	**Teacher Francisca Antônia da Silva** Students: Marilene da Silva Souza; Maria Lívia Freire de Lima.	Oldman Saltbush - a multifunctional plant
Escola Padre José Augusto Régis Alves	Jaguaretama	**Teacher Antônio Marcos Duarte Mota** Students: Dieimísson; Lucas Calisto Diógenes; Joelma Gomes de Souza.	Recycled Irrigation System and Alternative Fertilization in Vegetable Production.
EEEP Joaquim Moreira de Sousa	Fortaleza	**Teacher Elisglaylson Cavalcante de Freitas** Students: Ketlem Leão Barbosa; Adson Leite Braga.	Homemade Aquarium Oxygenator
EEEP Francisco das Chagas Vasconcelos	Santana do Acaraú	**Teacher Ana Claúdia Souza** Students: Francisco Adailson do Nascimento; Alline Nágila da Silva Oliveira; Ana Raquel de Maria.	That 1% is Moringa: Purifying Waters For Drinking and Eating By Treating With Moringa Oleifera.
EEM Dr. José Euclides Ferreira Gomes Júnior	Sobral	**Teacher José Nelson do Nascimento Neto** Students: Angelina do Nascimento Souza; Francisco Rikelmo da Silva Sousa; Lucivânia Costa de Souza; Adielsar de Sousa Dias; Beatriz Sales Pereira.	Organic Pharmacy

6TH STAGE - Presentation of the projects

The undergraduate and extension prorectorates and the human science center board attended the presentation of works done at UVA.

The presentation of the work done at UECE counted with the participation of the undergraduate and extension prorectorates and the course coordination.

FINAL CONSIDERATIONS:

7TH STEP - ELECTION OF PROPOSALS

What follows is a table containing the selected projects and their respective researchers to receive a CNPq Jr.

HUMAN SCIENCE

Rank	School	Municipality	Participants	Project title
1º	EEEP Prof.ª. Rosângela Albuerque de Couto	Itarema	Teacher Sitônio Coelho Miranda. Students: Mikele Maria de Sousa; Sabrina Irineo de Castro.	Patos: engenho or senzala, the story of a people behind a story.
2º	EEM José Claudio Araújo	Mucambo	Teacher Sara Heline Rodrigues de Brito Silva e Teacher Suzana Alves de Melo Students: Nara Cíntia Araújo Rodrigues; Ednaldo Neres Alcântara Rafael Lima Alves.	Participation and Citizenship: voting in the context of the Humanities.
2º	EEM Prof.ª Maria Edilce Dias Fernandes	Ibicuitinga	Teacher Lídia Mara Lima Nobre Students: Maria Eduarda Maia Girão; Islai Ellen Aguiar Maia.	The perception of the caatinga and the hinterland lifestyle

ENVIRONMENTAL AND BIOTECHNOLOGY SCIENCE

Rank	School	Municipality	Participants	Project title
1º	EEEP Lysia Pimentel Gomes Sampaio Sales	Sobral	Teacher Jacinto de Lima Farias Students: João Vitor Feijão da Silva; Yago Vasconcelos de Araújo; Francisco Davi da Silva Sales	Use of biogas for water and energy generation
2º	Escola de Ensino Médio de Irauçuba	Irauçuba	Teacher Fabrício Mota Gonçalves Students: Ana Beatriz Guilherme Santana; Verônica Ávila Pinheiro.	Irgatec System: rational use of water.
2º	EEM Francisca Pinto dos Santos	Ocara	Teacher Francisco Leandro Santos Dantas Student: Gabriel Cosme Maia	Manual mini chestnut peeling machine

EARTH SCIENCE

Rank	School	Municipality	Participants	Project title
1º	EEMTI Valdo de Vasconcelos Rios	Itarema	Teacher Francisco Ageu Ribeiro do Nascimento Students(1): Francisco Jonatas Xavier Dos Santos; Francisca Tamires Dos Santos	Analysis of the productive potential of camapu (Physalis Angulata) fruits in the city of Itarema.
2º	EEMTI Dr. João Almir de Freitas Brandão	São Benedito	Teacher Márcio Roberto Felisberto dos Santos Students: Mickael Douglas Ferreira Lopes; Elías Willkerson Lopes Gomes.	Heco-thermal
3º	EEEP Prof.ª Rosângela Albuquerque de Couto	Itarema	Teacher Lucas Guilherme Silva Students: Augusto Washington Gomes Martins; Artur Kauar Martins de Morais.	Desalination of brackish water by conversion of solar energy into thermal energy: a possible way out

LIFE SCIENCE

Rank	School	Municipality	Participants	Project title
1º	*Escola Padre José Augusto Régis Alves*	Jaguaretama	Teacher Antônio Marcos Duarte Mota Students: Dieimísson; Lucas Calisto Diógenes; Joelma Gomes de Souza.	Recycled irrigation system and alternative fertilization in vegetable production.
2º	EEM Olímpio Sampaio da Silva	Uruoca	Teacher Francisco Ferreira de Sousa Filho Students: Luana de Paula Souza; Maria Laura Alves de Sousa; Roseane de Sena Araújo;	Geo-practicing: dynamic methodologies for learning geographic knowledge in the context of the semi-arid landscape

3º	EEEP Francisco das Chagas Vasconcelos	Santana do Acaraú	Teacher Ana Claúdia Souza Students: Francisco Adailson do Nascimento; Alline Nágila da Silva Oliveira; Ana Raquel de Maria.	That 1% is Moringa: Purifying Waters For Drinking and Eating By Treating With Moringa Oleifera.

PURE SCIENCE

Rank	School	Municipality	Participants	Project title
1º	EEEP Francisco das Chagas Vasconcelos	Santana do Acaraú	Teacher Glauber Oliveira Benjamim Students: Iara Kelly Penha; Mariana Canafístula da Penha	Making alternative products from expanded polystyrene (ESP) and cashew nut liquid (CNSL)
2º	EEM Julia Alenquer Fontenelle	Pindoretama	Teacher Amilton Nogueira de Matos Silva Students: Ednildo Ferreira dos Santos; João Vitor Rodrigues Sousa	BanCoP - community bank of Pindoretama: experiences of microfinance solidarity in the development of community banks.
3º	EEEP Ícaro de Sousa Moreira	Fortaleza	Teacher Francisco José Mendes dos Santos Students: Nátali Gome Bandeira; Yasmin dos Santos Mangeth	Electrochemistry: A New Energy Awareness

8TH STAGE – Production of a book with all the projects approved in the III Science Fair and Scientific Exhibition from the Universidade Estadual Vale do Acaraú (UVA) with the partnership of Universidade Estadual do Ceará (UECE). The book is available to all teachers and students engaged in the science fair.

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