

Sugar Kingdom Chocolate Token

Smart Contract Audit Report





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# **AUDITED DETAILS**

### Audited Project

Project name	Token ticker	Blockchain
Sugar Kingdom Chocolate Token	СНОСО	Binance Smart Chain

### Addresses

Contract address	0x5903d6198f1f3d98394b186e6fff014c6849b4da	
Contract deployer address	0x246485162fA6690fCb23DdfEDD78c7cdA407a65F	

### Project Website

https://www.sugarkingdom.io/

### Codebase

https://bscscan.com/address/0x5903d6198f1f3d98394b186e6fff014c6849b4da#code



### **SUMMARY**

Sugar Kingdom is mainly inspired by the following 2 concepts: The match-3 mechanics: Visuals, instant gratification, messages and sounds which make up its gameplay. The sweetness of the world: We understand that combining an innocent and friendly brand with exciting possibilities is always a good opportunity.

### Contract Summary

#### **Documentation Quality**

Sugar Kingdom Chocolate Token provides a very good documentation with standard of solidity base code.

• The technical description is provided clearly and structured and also dont have any high risk issue.

#### **Code Quality**

The Overall quality of the basecode is standard.

 Standard solidity basecode and rules are already followed by Sugar Kingdom Chocolate Token with the discovery of several low issues.

#### **Test Coverage**

Test coverage of the project is 100% (Through Codebase)

### Audit Findings Summary

- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 5.
- SWC-110 SWC-123 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 777 and 777.



### CONCLUSION

We have audited the Sugar Kingdom Chocolate Token project released on March 2022 to discover issues and identify potential security vulnerabilities in the Sugar Kingdom Chocolate Token Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides satisfactory results with low-risk issues.

The Sugar Kingdom Chocolate Token smart contract code issues do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues, a floating pragma is set, and out-of-bounds array access which the index access expression can cause an exception if an invalid array index value is used. The current pragma Solidity directive is ""^0.8.0"". Specifying a fixed compiler version is recommended to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.



# **AUDIT RESULT**

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS



DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	PASS
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS



Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS



# **SMART CONTRACT ANALYSIS**

Started	Thursday Mar 31 2022 01:02:16 GMT+0000 (Coordinated Universal Time)		
Finished	Friday Apr 01 2022 02:03:20 GMT+0000 (Coordinated Universal Time)		
Mode	Standard		
Main Source File	SugarKingdomToken.sol		

### Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged



jed
jed



**LINE 291** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
unchecked {
291    _approve(sender, _msgSender(), currentAllowance - amount);
292  }
293
294    return true;
295
```



**LINE 310** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {

310    _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);

311    return true;

312  }

313
314
```



**LINE 332** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol



**LINE 365** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
364 unchecked {
365  _balances[sender] = senderBalance - amount;
366  }
367  _balances[recipient] += amount;
368
369
```



**LINE 367** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
366  }
367  _balances[recipient] += amount;
368
369  emit Transfer(sender, recipient, amount);
370
371
```



**LINE 388** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
387
388 _totalSupply += amount;
389 _balances[account] += amount;
390 emit Transfer(address(0), account, amount);
391
392
```



**LINE 389** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
__totalSupply += amount;

389    __balances[account] += amount;

390    emit Transfer(address(0), account, amount);

391

392    __afterTokenTransfer(address(0), account, amount);

393
```



**LINE 414** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
413 unchecked {
414  _balances[account] = accountBalance - amount;
415  }
416  _totalSupply -= amount;
417
418
```



**LINE 416** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
415 }
416 _totalSupply -= amount;
417
418 emit Transfer(account, address(0), amount);
419
420
```



**LINE 523** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
522 unchecked {
523    _approve(account, _msgSender(), currentAllowance - amount);
524  }
525    _burn(account, amount);
526  }
527
```



**LINE 772** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
771 ) public onlyOwner {
772  require((burn + fee) <= _maxTotalTax);
773  _txnFees[_type] = [burn, fee];
774 }
775
776</pre>
```



**LINE** 785

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
784
785 _totalSupply += amount;
786 _balances[account] += amount;
787 emit Transfer(address(0), account, amount);
788
789
```



**LINE** 786

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
__totalSupply += amount;

786    _balances[account] += amount;

787    emit Transfer(address(0), account, amount);

788

789    _afterTokenTransfer(address(0), account, amount);

790
```



**LINE 811** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
810 unchecked {
811 _balances[account] = accountBalance - amount;
812 }
813 _totalSupply -= amount;
814
815
```



**LINE 813** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
812 }
813 _totalSupply -= amount;
814
815 emit Transfer(account, address(0), amount);
816
817
```



**LINE 858** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
857  }
858  burnTokens = (amount * burn) / 100 / 10**18;
859  taxTokens = (amount * tax) / 100 / 10**18;
860  left = amount - burnTokens - taxTokens;
861  }
862
```



**LINE 858** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
857  }
858  burnTokens = (amount * burn) / 100 / 10**18;
859  taxTokens = (amount * tax) / 100 / 10**18;
860  left = amount - burnTokens - taxTokens;
861  }
862
```



**LINE 858** 

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```
857 }
858 burnTokens = (amount * burn) / 100 / 10**18;
859 taxTokens = (amount * tax) / 100 / 10**18;
860 left = amount - burnTokens - taxTokens;
861 }
862
```



**LINE 858** 

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#### Source File

- SugarKingdomToken.sol

```
857 }
858 burnTokens = (amount * burn) / 100 / 10**18;
859 taxTokens = (amount * tax) / 100 / 10**18;
860 left = amount - burnTokens - taxTokens;
861 }
862
```



**LINE 859** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
858  burnTokens = (amount * burn) / 100 / 10**18;
859  taxTokens = (amount * tax) / 100 / 10**18;
860  left = amount - burnTokens - taxTokens;
861  }
862  return (burnTokens, taxTokens, left);
863
```



**LINE 859** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
858  burnTokens = (amount * burn) / 100 / 10**18;
859  taxTokens = (amount * tax) / 100 / 10**18;
860  left = amount - burnTokens - taxTokens;
861  }
862  return (burnTokens, taxTokens, left);
863
```



**LINE 859** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
858 burnTokens = (amount * burn) / 100 / 10**18;

859 taxTokens = (amount * tax) / 100 / 10**18;

860 left = amount - burnTokens - taxTokens;

861 }

862 return (burnTokens, taxTokens, left);

863
```



**LINE 859** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
858 burnTokens = (amount * burn) / 100 / 10**18;

859 taxTokens = (amount * tax) / 100 / 10**18;

860 left = amount - burnTokens - taxTokens;

861 }

862 return (burnTokens, taxTokens, left);

863
```



**LINE 860** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
859 taxTokens = (amount * tax) / 100 / 10**18;
860 left = amount - burnTokens - taxTokens;
861 }
862 return (burnTokens, taxTokens, left);
863 }
864
```



**LINE 860** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
859 taxTokens = (amount * tax) / 100 / 10**18;
860 left = amount - burnTokens - taxTokens;
861 }
862 return (burnTokens, taxTokens, left);
863 }
864
```



**LINE 884** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
unchecked {
884   _balances[sender] = senderBalance - (left + taxTokens);
885   }
886   _balances[recipient] += left;
887   _balances[_taxAccount] += taxTokens;
888
```



**LINE 884** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
unchecked {
884   _balances[sender] = senderBalance - (left + taxTokens);
885   }
886   _balances[recipient] += left;
887   _balances[_taxAccount] += taxTokens;
888
```



**LINE 886** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
885 }
886 _balances[recipient] += left;
887 _balances[_taxAccount] += taxTokens;
888
889 emit Transfer(sender, recipient, left);
890
```



**LINE 887** 

#### **low SEVERITY**

This plugin produces issues to support false positive discovery within mythril.

#### Source File

- SugarKingdomToken.sol

```
886   _balances[recipient] += left;
887    _balances[_taxAccount] += taxTokens;
888
889   emit Transfer(sender, recipient, left);
890   if (taxTokens > 0) emit Transfer(sender, _taxAccount, taxTokens);
891
```



### SWC-103 | A FLOATING PRAGMA IS SET.

LINE 5

#### **low SEVERITY**

The current pragma Solidity directive is ""^0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

#### Source File

- SugarKingdomToken.sol

```
pragma solidity ^0.8.0;

// OpenZeppelin Contracts v4.4.1 (token/ERC20/ERC20.sol)

// OpenZeppelin Contracts v4.4.1 (token/ERC20/ERC20.sol)
```



### SWC-110 | OUT OF BOUNDS ARRAY ACCESS

**LINE 777** 

#### **low SEVERITY**

The index access expression can cause an exception in case of use of invalid array index value.

#### Source File

- SugarKingdomToken.sol

```
function getFees(uint8 _type) public view returns (uint256, uint256) {
return (_txnFees[_type][0], _txnFees[_type][1]);
}

778 }

779

780 function _mint(address account, uint256 amount) internal override {
781
```



### SWC-110 | OUT OF BOUNDS ARRAY ACCESS

**LINE 777** 

#### **low SEVERITY**

The index access expression can cause an exception in case of use of invalid array index value.

#### Source File

- SugarKingdomToken.sol

```
function getFees(uint8 _type) public view returns (uint256, uint256) {
return (_txnFees[_type][0], _txnFees[_type][1]);
}

778 }

779

780 function _mint(address account, uint256 amount) internal override {
781
```



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This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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# **ABOUT US**

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.