

# Use Of Traditional Herbal Medicine, Content Compound Bioactives And Effects His Physiology Is On The Rise Immunity Body : Systematic Literature Review

Muslimah<sup>1</sup>, Che Wan Jasimah Bt Wan Mohamed Radzi<sup>2</sup>, Suyadi<sup>3</sup>, Ari Yuniastuti<sup>4\*</sup>, Swasty<sup>5</sup>,  
Nina Anggraeni Noviasari<sup>6</sup>, Muhammad Sowwam<sup>7</sup>, Qeyza Naufalia Riz Asmara<sup>8</sup>

<sup>1,5,6,7,8</sup>Faculty of Medicine, Universitas Muhammdiyah Semarang, Indonesia

<sup>2,3</sup>Department of Science and Technology Studies, Faculty of Science, Universiti Malaya, Malaysia

<sup>4</sup>Department of Biology, Faculty Mathematic and Natural Science, Universitas Negeri Semarang, Indonesia

<sup>6</sup>Faculty of Medicine, Universitas Muhammdiyah Semarang, Indonesia

\*Corresponding Author:

Email: [ariyuniastuti@mail.unnes.ac.id](mailto:ariyuniastuti@mail.unnes.ac.id)

---

## Abstract.

*Background: Combination trend treatment use herbal and conventional medicines, respectively gradually move going to approach integrative. Use herbal medicine is considered correlated more near with attitudes and beliefs public because can increase immunity body and eliminate worries effect side to drug pharmacy. This is also proven with various type disease that has resolved . Objective: Take inventory use commodity herbal plants and ingredients bioactive as well as study his physiology on the rise immune body. Method: Systematic literature review written based on the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines. Search done via ScienceDirect and Sage databases with use related keywords with traditional herbal medicine, content compound bioactive and enhancement immunity body. Collecting data from a database involves keyword combination with Boolean operators. A total of 24 articles used as internal data this review study. Result: Various potential herbal medicine for utilized in a way massive including Divya-Swasari -Ras (DSR) with potential overcome asthma; Polygon multiflori For handle intestinal inflammation; Bu Shen Hui Yang Fang (BSHY) for overcome cancer blood leukemia; Skin wood is listed as anti-inflammatory; Ciji- Hua'ai - Baosheng (CHBD) decoction as antitumor; Sinisan For management of chronic hepatitis; Ganoderma lucidum as immunostimulator; Pudilan (PDL) as anti-SARS-COV-2; Carthamus tinctorius L. for handling cardiovascular; Lycium barbarum polysaccharide (LBP) as probiotics; Eucommia ulmoides Oliver as material diabetes medication; Stew Gubenfangxiao (GBFXD) as drug Respiratory; Naodsheng Tablets (NDS) as drug Alzheimer's disease; Astragalus membranaceus (Huangqi (HQ)) for uveitis treatment; Gun-Chil-Jung Capsules (GCJ) as anti cancer; Ligusticum Chuanxiong (Rhizoma chuanxiong) and Borneol ( Borneolum syntheticum) as drug atherosclerosis; Salvia miltiorrhiza Bge.as drug tumor at a time protector endothelium vascular; Tetrastigma hemsleyanum Diels et Gilg for handling injury lungs I; Achyranthis bidentatae For drug disease kidney; Acanthus ilicifolius L., Phylloidium pulchellum (L.) Desv. and Cudrania cochinchinensis Lour.as anti-hepatitis; Epimedium as an antitumor for melanoma, Punica granatum For treatment injury heart; Sanghuangporus sanghuang as anti-inflammatory protector network lungs; and Combretum micranthum as anti-inflammatory . Conclusion: Usage traditional herbal medicine effect on improvement system immune The body is supported by various compound bioactives in these herbal plants .*

**Keywords :** Herbal medicine, compounds bioactive, inflammatory and system immune.

---

## I. INTRODUCTION

Combination herbal medicine with treatment conventional become trend gradually move going to approach integrative. This matter proven with various type disease that has resolved .In case patient cancer in Korea, 78% of patients from various type cancer among them cancer lung, cancer breast nor cancer skin has use treatment conventional Mild Temperature Hyperthermia ( exposure temperature 41.5 or above 42 ° C ) 1 to 2 times a week combined with consumption herbal medicine Gun-Chil Jung (GCJ) because proven can increase continuity life patient .Application therapy hyperthermia trusted capable cause change physiological environment micro tumors and capable activates cell apoptosis cancer. Temporary GCJ herbal medicine from extract plant *Rhus verniciflua* Stokes (RVS) is proven own a number of compound important among them fisetin, sulfuretin, and fustin with effects of apoptosis on various cell cancer Because own effect anti-inflammatory, antioxidant, immunomodulatory, and antitumor (Jun et al., 2020) .Study Wang et al., (2021) strengthen that Another traditional herbal medicine is Bu Shen Hui Yang Fang (BSHY) from China proven effective overcome cancer blood leukemia proven with it's stable rate cytokine interleukin 4 (IL-4) so happen enhancement system immunity body. Not only treatment cancer, uveitis or lesion inflammation of the uvea, retina, and vessels retinal blood can also healed with herbal medicines.

*Astragalus membranaceus* (Huangqi (HQ)) is a potent Traditional Chinese flavorful sweet and warm as can be modulate initiation and progression of uveitis through subtraction production cytokines and regulate cell apoptosis (Lu et al., 2023). Other herbal commodities are also trusted can treat various disease. Research conducted Bihonegn et al., (2019) prove that extract 80% methanol and fractions solvent leaf *Vernonia amygdalina* Del.(Asteraceae) has its antimalarial properties significant capable increase time endure live and prevent decline body weight of infected mice *Plasmodium berghei*. Therefore the, usage herbal medicine increasingly trusted own precise multitarget effect. Use herbal medicine is considered resonate more near with attitudes and beliefs public Because can increase immunity body and eliminate worries effect side drug pharmacy (Rahayu et al., 2020; Sumarni et al., 2022). There have been many research carried out researcher related benefit herbal medicine against handling various disease. However, inventory commodities and content bioactive as well as study his physiology on the rise immune body not yet summarized in a way deep. Therefore that 's writing article for discuss this problem. This study can made reference for researcher nor party pharmacy For progress making more good medicine.

## II. METHODS

### Method

Systematic review of this written based on the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines. Data collection involves keyword combination with the Boolean operator for selecting information data in the database based on the keywords used.

### Criteria Eligibility

Study review based on research related articles with use traditional herbal medicine, content compound bioactive and enhancement immunity body. Criteria sample in studies is in humans, where race or ethnic group no considered.

### Search Strategy

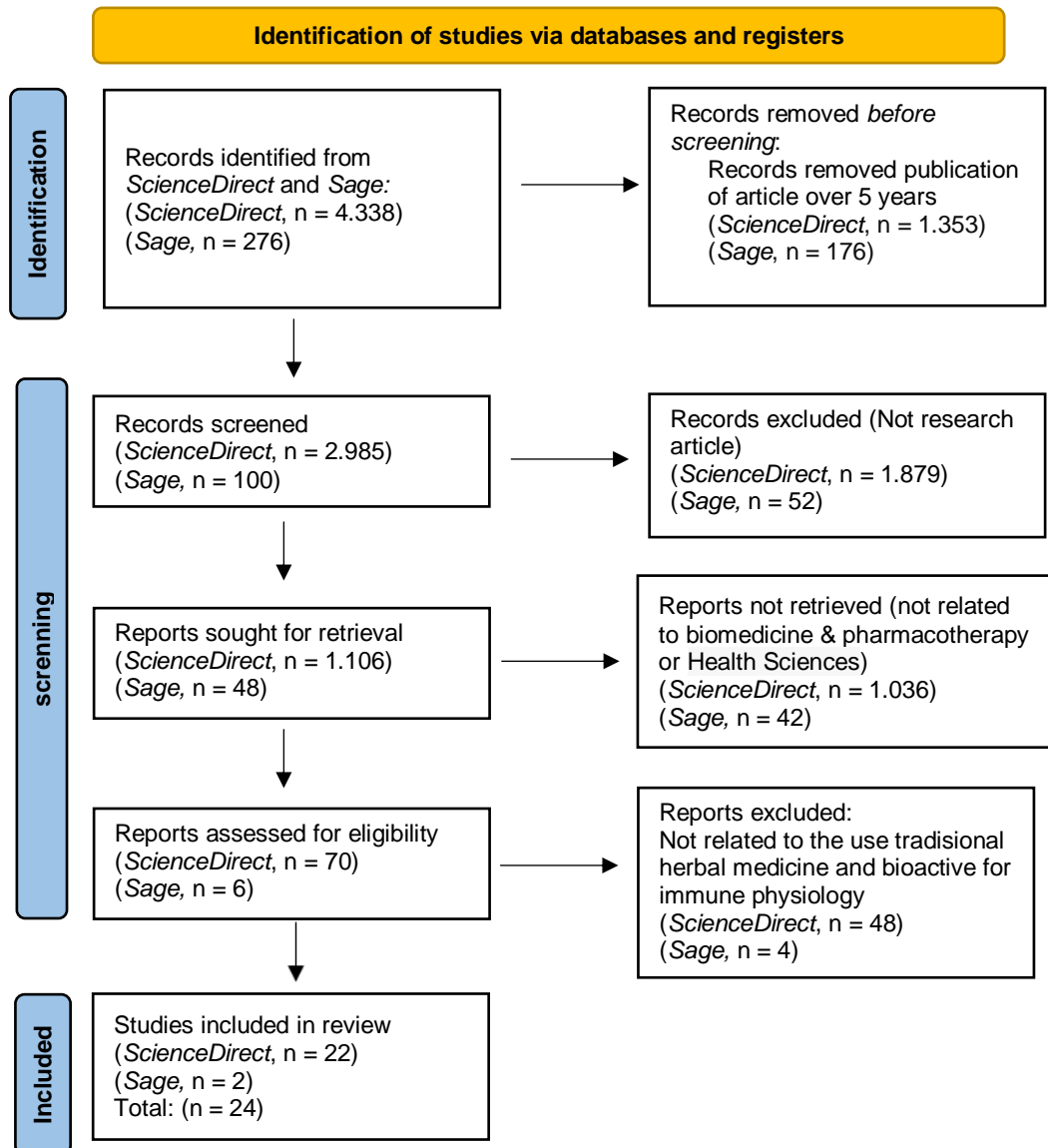
Search article carried out in September 2023, via an electronic database that is *ScienceDirect* and *Sages*. Range time selected publications that is 2018 – 2023. Search use related keywords with traditional herbal medicine, content compound bioactive and enhancement immunity body with condition use Language English. Keywords following used in database search : “ Traditional Herbal Medicine” AND “Bioactive for Immune Physiology”.

### Selection article

Article obtained Then selected based on its relevance with range time and keywords used that is related use traditional herbal medicine, content compound bioactive and enhancement immunity body. Selection process article based on a number of criteria i.e., range time publication for five years (2018 – 2023), in Language English, in the form of research articles and related matters with biomedicine and pharmacotherapy. Search beginning from ScienceDirect and Sage databases obtained a total of 4,338 articles from ScienceDirect and 276 articles from Sage. Selection beginning based on range time publication article that is in five years latest (2018 – 2023) obtained to two databases, with 2,985 and 100 articles respectively. Selection furthermore that is only take from just research articles so that obtained from to two databases, respectively 1,106 and 48 articles. Then selection other done for look for related articles with biomedicine and pharmacotherapy nor health sciences, found 70 articles from ScienceDirect and 6 articles from Sages. So that's a temporary total From the selection process, 76 articles were obtained. From 76 articles, will reviewed return based on relevance from objective studies This with read title and abstract on each article. So that results end obtained as many as 24 articles will be analyzed ( **Figure 1** ).

### Data extraction

Articles that have been selected will analyzed, relevant information then extracted. Relevant information covers author, year, title, method, and results research. Results obtained Then will reviewed the connection with use traditional herbal medicine, content compound bioactive and enhancement immunity body.



**Fig 1** Selection process studies

### III. RESULTS AND DISCUSSION

Repositioning strategy drug as enhancement output innovative medicine refers to target discovery and expansion study more carry on with effect clinical in a way clear biology. In China, treatment with *Traditional Chinese Medicine* trusted can guard health body for 2000 years more (Zhang et al., 2021). Response immune balanced body role important For control and eliminate infection, use response immune adaptive and innate, as well system - mediated events complement. Immune cells will produce cytokines, chemokines and prostaglandins when happen inflammation so that cause inflammation chronic support development disease degenerative such as diabetes, obesity, or disease cardiovascular. Inflammatory process modulated by factors intrinsic and external. External factors Act through similar way with what is done Endogenous molecules and mediators. Endogenous ligands and metabolites derivative nutrition can change response rate and status cellular and systemic during inflammation (Schwager et al., 2018). A number herbal medicine with compound bioactive contained therein own effect suppressor cytokines proinflammatory such as TNF- $\alpha$ , interferon (IFN)- $\gamma$ , TGF- $\beta$  and interleukin (IL)-6 (T.Wang et al., 2018 ; LH Chien et al., 2022). Therefore that, with development study chemistry and pharmacy, then use internal herbal medicine overcome various disease has lots studied ( **Table 1** ).

**Table 1.** Potency Herbal Commodities, Bioactive Ingredients and Effects Its physiology

Author and Year	Names of Herbal Plants / Spices	Material Specifications	Material / Compound Bioactive	Effect Physiology of the Body's Immune
(Balkrishna et al., 2020)	Divya- Swasari -Ras (DSR)	<ul style="list-style-type: none"> <li>- <i>Glycyrrhiza glabra</i> L roots (12.7%)</li> <li>- Bud flower <i>Syzygium aromaticum</i> (L.) Merr .&amp; L.M.Perry (6.3%)</li> <li>- Skin tree <i>Cinnamomum zeylanicum</i> Blume (6.3%)</li> <li>- Sap <i>Pistacia integerrima</i> JL Stewart ex Brandis (12.7%)</li> <li>- Fruit <i>Cressa cretica</i> (L.) (12.7%)</li> <li>- <i>Zingiber officinale</i> Rosco Root (8.5%)</li> <li>- <i>Piper nigrum</i> (L.) (8.5%)</li> <li>- <i>Piper longum</i> (L.) (8.5%)</li> <li>- <i>Anacyclus</i> Root <i>pyrethrum</i> (L.) Lag (6.3%)</li> <li>- Mica ash calcined</li> <li>- Shell calcined ash oyster pearl</li> <li>- Gypsum ash is rich in calcium</li> <li>- Shell ash <i>Cypraea</i> Calcined Linn <i>moneta</i>.</li> </ul>	Acid, Eugenol, 6-Gingerol, Piperine, Glycyrrhizin, Gallic Acid and Ellagic Acid	DSR capable overcome asthma proven with subtraction infiltration cells inflammation to in airways and lungs. DSR capable weakens pro-inflammatory genes and protein levels as well as can restore capacity anti- oxidative stress ( <b>Figure 2</b> ).
(He et al., 2021)	<i>Polygony multiflori</i>	Extract root <i>Polygony multiflori</i> with dose 25 mg/kg (TSG-25) or 100 mg/kg (TSG-100)	2,3,5,4'-Tetrahydroxystilbene-2-O-β-D-glucoside (TSG)	TSG reduces production pro- inflammatory cytokines such as TNF-α, IL-1β, and IL-6 (p < 0.05–0.001) and increased rate cytokines anti-inflammatory IL-10 (p < 0.05–0.001).TSG is capable hinder shortening of the large intestine while guard intestinal mucosa and reduces infiltration cell inflammation .TSG can too increase abundance relatively bacteria both Firmicutes and Bacteroidetes as well can lower abundance relatively less bacteria profitable namely the genera Helicobacter, Bacteroides, and Parabacteroides.
(Wang et al., 2021)	Bu Shen Hui Yang Fang (BSHY)	Bikshuhood 15 g, icariine 15 g, rhizoma zingiberis 15 g, lucid ganoderma 10 g, roots sweet 10 g and wood sweet 6 g.	Icariin, Baohuoside I, Epimedeside A, Icariside D2, Isoquercetin, Liquiritigenin, Glycyrrhetic acid, 4',5,7-trihydroxy-8-prenylflavone, Liquiritin apioside, 6-Shogaol, 6-Gingerol, trans-Cinnamaldehyde	BSHY has potential overcome cancer blood leukemia with normalize rate the cytokine interleukin 4 (IL-4) was demonstrated with experiment in the plasma of affected mice immunosuppression .BSHY can do it too increase proliferation lymphocytes so that happen enhancement regulations system immune in ward off cancer .

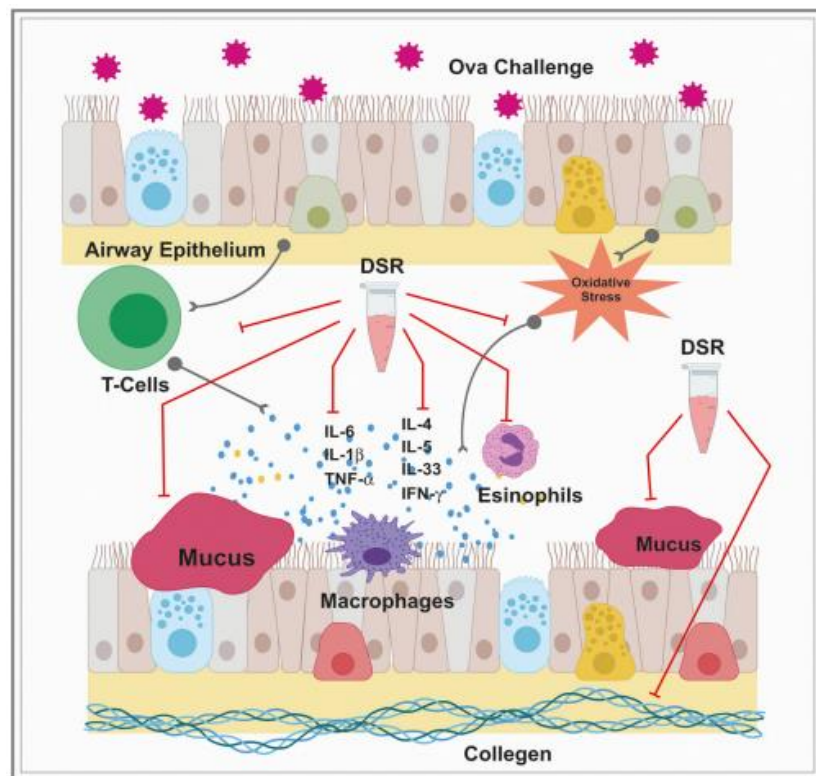
(Forhad et al., 2020)	Skin dita wood ( <i>Alstonia scholaris</i> (L.) R.Br.)	Powder skin Dita wood extracted 3 days consecutive with solvent methanol Then evaporated with pressure reduced with a rotary evaporator.	From GC-MS MEAS analysis was obtained around four tens metabolites secondary from extract skin dita wood .Furazan-3-amine and 5-dimethylamino-6 azauracil is most potential compound .	Furazan-3-amine has effect antidepressants and thrombolytics .5-dimethylamino-6 azauracil own anti- inflammatory activity .On the system treatment traditional skin dita wood is used in treatment paralysis brain, disease heart disease, inflammation, pain rheumatism, pain teeth, pain headache, pain childbirth, malaria fever, tumors, ulcers chronic, disease yellow, disease skin, problems digestion, asthma, phlegm, cough and so on .
(Xi et al., 2018)	Ciji- Hua'ai - Baosheng Stew (CHBD)	<i>Radix salviae</i> Miltiorrhizae, <i>Radix codonopsis</i> , Poria, Bulbus <i>Fritillariae ussuriensis</i> and <i>Concha ostrea</i>	Hesperidin, spinosin, naringin, salvianolic acid c, acid lithospermic, vitexin, baicalin, caffeic acid, salvianolic acid b, nobiletin and cryptotanshinone .	Compound Active CHBD is antitumor with lower IL-6 levels .
(Shu et al., 2018)	Sinisan	Fructus <i>Aurantii immaratus</i> , Radix <i>Bupleuri chinensis</i> , Radix <i>Paeoniae alba</i> , and Radix <i>Glycyrrhizae</i>	There are 80 compounds active Sinisan formula .A number of among them that is arcapillin, sinensetin, nobiletin, and glycerol play a role role important in treating chronic hepatitis .	Sinisan Formula own effect good therapeutic against chronic hepatitis with targeting Bcl-2, CDK2, CDK4 and MAPK14 genes via strengthening system immunity body simultaneously with apoptosis induction and regulation lipid metabolism .
(Li et al., 2021)	<i>Ganoderma lucidum</i>	Extract fruit <i>G.lucidum</i>	Extract fruit <i>G.lucidum</i> contains polysaccharides, triterpenoids, nucleotides, and steroids are known as substance active physiological .	Extract fruit <i>G.lucidum</i> is capable increase immunity, gut integrity, and dysbiosis gut microbiota with increase abundance relatively bacteria probiotics <i>Lactobacillus acidophilus</i> and <i>Bifidobacterium breve</i> .Activity immunostimulator can regulate function CD4+ T cells so can increase activity immunostimulator .
(Kong et al., 2020)	Pudilan (PDL)	Combination material the realms of Pu Gong Ying, Ku Di Ding, Ban Lan Gen, and Huang Qin.	Quinazolinone and Oxysophocarpine	There is compound active deterrent the entry of SARS-COV-2, which played the most role are Quinazolinone and Oxysophocarpine proven through analysis molecular docking with multiple precise protein targets ( <b>Figure 3</b> ).
(Yu et al., 2019) .	<i>Carthamus tinctorius</i> L.	Extract flower <i>Carthamus tinctorius</i> L.	Stigmasterol; Baicalin; $\beta$ -Sitosterol; Poriferast-5-en-3 $\beta$ -ol; Cholesterol; Lignan; $\beta$ -Carotene; Flavoxanthin; Phytoene; Phytofluene; 4-[(E)-4-(3,5-dimethoxy-4-oxo-1-cyclohexa-2,5-dienylidene)but-2-enylidene]-2,6-dimethoxycyclohexa 2,5-dien-1- one; Pyrethrin II, Lupeol palmitate, Quercetagetin; Quercetin; 6-Hydroxykaempferol; Luteolin; 6-Hydroxynaringenin; Kaempferol; Baicalein; qt_Carthamone; 7,8-Dimethyl-1H-pyrimido[5,6-g]quinoxaline-2,4-dione; Carthamidine; Isocarthamidine; Hydroxysafflor yellow A; Safflor yellow A; Safflomin C and Kaempferid .	Safflower can treat disease cardiovascular with arrange Activation platelets with regulates the PRKACA, PIK3R1, MAPK1, PPP1CC, PIK3CA and SYK genes ( <b>Figure 4</b> ).

(Zhu et al., 2020)	<i>Lycium barbarum</i> polysaccharide (LBP)	The composition of LBP includes arabinose, rhamnose, xylose, mannose, galactose, and glucose with molar ratio 0.18:0.81:0.07:2.17:0.23:6.52.	Polysaccharide, scopoletin (6-methoxy-7-hydroxycoumarin), glucosylated precursor, a stable vitamin C analog 2-O-β-d- glucopyr anosyl -l-ascorbic acid, carotenoids, betaine, cerebroside, β-sitosterol, flavonoids, amino acids, minerals, and vitamins.	LBP can used as source probiotics Because can increase growth bacteria probiotics selective with growth maximum of 8.23 (log10 cfu /mL) and 6.62 (log10 cfu /mL) respectively for <i>Lactobacillus acidophilus</i> and <i>Bifidobacterium longum</i> .
(Huang et al., 2021)	<i>Eucommia ulmoides</i> Oliver	<i>E.ulmoides</i> leaves (5.0 g) were extracted with solvent methanol	12 iridoids, 13 flavonoids, 14 lignans,, 14 acids phenolics, 20 phenylpropanoids, 10 terpenoids and steroids.	Extract leaf <i>E.ulmoides</i> can dealing with diabetes because own characteristic protector kidneys in glomerular mesangial cells .
(Xing et al., 2019)	Stew Gubenfangxiao (GBFXD)	<ul style="list-style-type: none"> <li>- Roots of <i>Astragalus membranaceus</i> (Fisch.) Bge .<i>Var.mongholicus</i> ( Bge .) Hsiao; Zhi Huang Qi (15g)</li> <li>- <i>Codonopsis</i> Root <i>pilosula</i> (Franch.) Nannf .;Dang Shen (10g)</li> <li>- <i>Sclerotia Poria cocos</i> ( Schw .) Wolf;Fu Ling (10g)</li> <li>- Rhizome <i>Atractylodes macrocephala</i> Koidz .;Bai Zhu (10g)</li> <li>- Skin <i>Citrus reticulata</i> Blanco;Chen Pi (6g)</li> <li>- <i>Saposhnikovia</i> Root <i>divaricata</i> ( Turcz .) Schischk .;Fang Feng (3g)</li> <li>- <i>Cryptotympana pustules</i> Fabricius;Chan Tui (6g)</li> <li>- <i>Magnolia denudata</i> shoots Desr .;Xin Yi (6g)</li> <li>- Fruit <i>Schisandra chinensis</i> ( Turcz .) Baill .;Wu Wei Zi (6g)</li> <li>- <i>Ostrea gigas</i> Thunberg;Duan Mu Li (15g)</li> <li>- Rhizomes and roots <i>Glycyrrhiza uralensis</i> Fisch .;Gan Cao (3g)</li> </ul>	L iquiritin, prim-o- glucosylcimifugin, lobetyolin, magnolin, and schisandrol	GBFXD acts as material drug Respiratory Because can arrange Homeostasis of Apoa-1, Apoc-1, Cfd, and Lrg1 proteins. <b>Apoa-1 and Apoc-1</b> works For arrange transport cholesterol, balance lipid metabolism, and integrity epithelium airway; <b>Cfd</b> role active in arrange response immune; <b>EGFR and Lrg1</b> works For arrange proliferation cell epithelium and remodeling airway .
(Zhang et al., 2021)	Naodesheng Tablets (NDS)	Naodesheng (NDS) is herbal combination consisting from <i>Panax notoginseng</i> ( Sanqi, SQ), Chuanxiong Rhizoma (Chuanxiong, CX), Carthami Flos ( Honghua, HH), Radix <i>Puer ariae</i> (Gegen, GG), and <i>Crataegus pinnatifida</i> Bge ( Shanzha, SZ).	There is Lots compound active in NDS.Amount compound active potential from SQ, CX, HH, GG, and SZ respectively are 56, 177, 71, 35 and 26.	NDS has potency as material treatment Alzheimer's disease (AD) through enhancement plasticity synaptic and inhibitory inflammation nerve with emphasis NF- κB signaling .NDS can also activate track cAMP/PKA/CREB signaling plays a role as enhancer learning and memory ( <b>Figure 5</b> ).
(Lu et al., 2023)	<i>Astragalus membranaceus</i> ( Huangqi (HQ))	Extract Huangqi	<ul style="list-style-type: none"> <li>- Mairin</li> <li>- Jaranol</li> <li>- Hederagenin, (3S,8S,9S,10R,13R,14S,17R)-10,13-dimethyl-17-[(2R,5S)-5-propan-2-yl-octan-2-yl]-2,3,4,7,8,9,11,12,14,15,16,17-dodecahydro-1H-cyclopenta[a]phenanthren-3-ol</li> <li>- Isorhamnetin</li> </ul>	H Uangqi potential treat uveitis due to his role in reduce production cytokines and regulate cell apoptosis through track NOD-like receptor (NLR), apoptosis, and toll-like receptor (TLR) signaling with suppresses target genes for uveitis development ( <b>Figure 6</b> ).

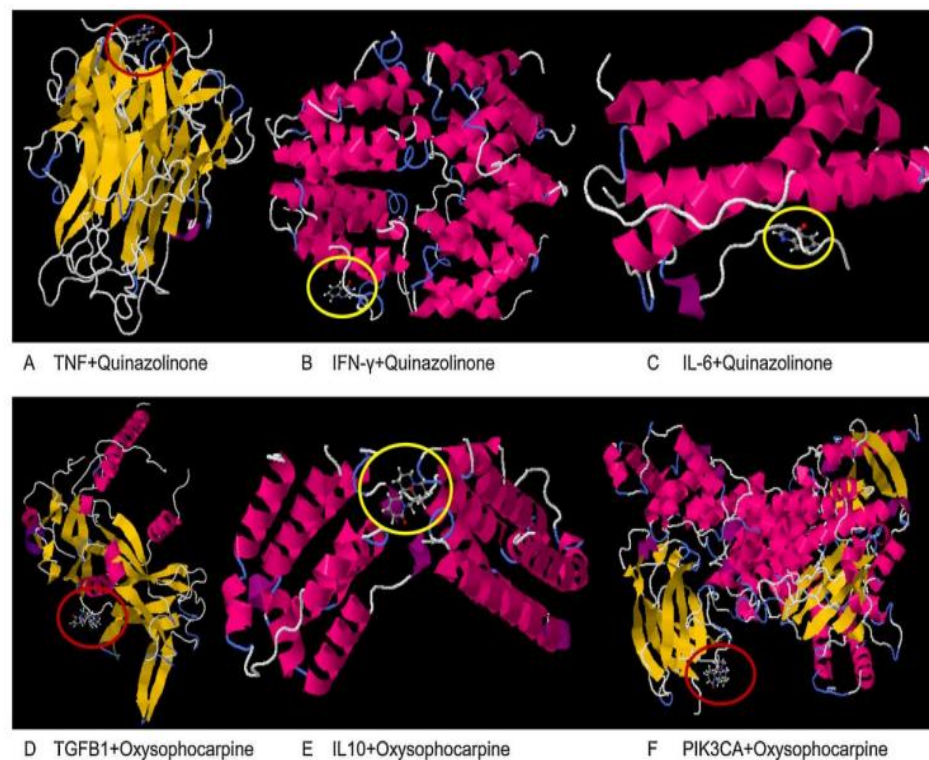
			<ul style="list-style-type: none"> <li>- 3,9-di-O-methylnissolin</li> <li>- 5'-hydroxyiso-muronulatol-2',5'-di-O-glucoside</li> <li>- 7-O-methylisomucronulatol</li> <li>- 9,10-dimethoxypterocarpan-3-O-β-D-glucoside</li> <li>- (6aR,11aR)-9,10-dimethoxy-6a,11a-dihydro-6H-benzofurano[3,2-c]chromen-3-ol</li> <li>- Bifendate</li> <li>- Formononetin</li> <li>- Isoflavanone</li> <li>- Calycosin</li> <li>- Kaempferol</li> <li>- F.A</li> <li>- (3R)-3-(2-hydroxy-3,4-dimethoxyphenyl)chroman-7-ol</li> <li>- Isomucronulatol-7,2'-di-O-glucoside</li> <li>- 1,7-Dihydroxy-3,9-dimethoxy pterocarpene</li> <li>- quercetin</li> </ul>	
(Jun et al., 2020)	Gun-Chil-Jung Capsules (GCJ)	<i>Rhus verniciflua</i> Stokes aqueous extract	Fustin, fisetin, and sulfuretin (total 600 mg per capsule)	GCJ as anti cancer capable increase more from 28 days OS (Overall Survival) and EFS (Event Free Survival) are longer because acts on cell apoptosis cancer.
(Lei et al., 2019)	Ligusticum Chuanxiong ( <i>Rhizoma chuanxiong</i> ) and Borneol ( <i>Borneolum syntheticum</i> )	Ligusticum Chuanxiong ( <i>Rhizoma chuanxiong</i> ) and Borneol ( <i>Borneolum syntheticum</i> ) are two ingredients main in pharmacopoeia Suxiao Jiuxin Pills.	Phthalides, Senkyunolide A and Ligustilide	Senkyunolide A and Ligustilide can hinder CD137 expression which is a diagnostic biomarker in atherosclerosis. More carry on confirmed that Ligustilide in a way effective push AP-1 and NF-κB expression and AKT phosphorylation. Phthalides are component which improves response immunity and inflammation in atherosclerosis.
(Sun et al., 2021)	<i>Salvia miltiorrhiza</i> Bge.	<i>Salvia miltiorrhiza</i> normal utilized Its roots and rhizomes have a bitter taste rather cool, and working Regulates the heart, pericardium, and liver meridians.	Salvianolic acid A	Salvianolic acid A can bother reaction inflammation mediated by target proteins such as APOE, factors necrosis tumors and LDLR, and protect endothelium vascular.
(Wang et al., 2022)	<i>Tetrastigma hemsleyanum</i> Diels et Gilg	Boiled water from <i>Tetrastigma hemsleyanum</i> normal used For treatment traditional	Flavonoids, polyphenols and polysaccharides	Boiled water from <i>Tetrastigma hemsleyanum</i> capable treat injury lungs l ipopolysaccharide - induced acute with reduce inflammation and stress oxidative through weakening track TLR4/COX-2/NF-κB signaling.

(Wang et al., 2020)	<i>Achyranthis bidentatae</i>	<i>Achyranthes bidentata</i> raw and processed with salt, through technique different processing from raw <i>Achyranthes</i> roots usually	Ginsenoside Ro and Chikusetsu saponin IVa	Able to treat injury kidney induced acute lipopolysaccharide, via track similar estrogen, which regulates cell immunity For bother response inflammation and pathways stress oxidative, as well modulate expression of apoptosis- related proteins .
(Zhao et al., 2022)	<ul style="list-style-type: none"> <li>• <i>Acanthus ilicifolius</i> L.</li> <li>• <i>Phylloidium pulchellum</i> (L.) Desv .</li> <li>• <i>Cudrania cochinchinensis</i> Lour.</li> </ul>	Third type the herbal plant is material main in the drug formula traditional China For treating hepatitis B.	Quercetin, p-coumaric acid, naringenin, ferulic acid, wighteone, L-tryptophan, $\beta$ -sitosterol, cholesterol, stigmasterol, aurantiamide acetate, luteolin and caffeic acid ester.	RORA, CDK2, RELA, AKT1 and IKBKG are considered as the main target of anti-hepatitis B, where CDK2, RELA, AKT1 and IKBKG are related with cycle cells and inflammation, shows that medicinal formula This can give anti- hepatitis B effect simultaneously .
(Chen et al., 2021)	Epimedium	Epimedium is a widely used traditional herbal formula used in Asian countries as well is a natural flavonoid with various activity biological like anti-osteoporosis and anti- tumor effects .	Icariin, icaritin, icariside I and icariside II	Through remodeling microbiome and traits regulations immunity body, metabolites from epimedium especially icariside I is capable hinder B16F10 melanoma growth .Icariside I shows activity anti- tumor immunology, with happen enhancement regulations several lymphocyte subsets including CD4+ and CD8+ T cells or NK and NKT cells .
(Wang et al., 2018)	<i>Punica granatum</i>	Extract skin fruit <i>Punica granatum</i> is extract natural that has characteristic anti-inflammatory and antioxidant	Punicalagin and ellagic acid	Reduce injury liver caused by concanavalin A with lower regulations plasma levels of alanine transaminase, aspartate transaminase and cytokines, including TNF- $\alpha$ , interferon (IFN)- $\gamma$ and interleukin (IL)-6.
(Chien et al., 2023)	<i>Sanguangporus sanghuang</i>	<i>Sanguangporus sanghuang</i> is drug traditional that has been used For treat gastrointestinal, digestive, gynecological, cancer and disease diseases others in Asian countries	Protocatechuic acid, proto catechualdehyde, caffeic acid, 3,4- dihydroxybenzalacetone and hispidin	Reduce Suite inflammation, stress oxidative, and apoptosis- related protein expression, including TLR4/NF- $\kappa$ B /MAPK, Keap1/Nrf2/HO-1, CaMKK /AMPK/ Sirt1, and TGF- $\beta$ /SMAD3 signaling .However, through serum cytokines and glutathione evaluation as well effective reduce expression factor proinflammatory, including TNF- $\alpha$ , TGF- $\beta$ , IL-1 $\beta$ , and IL-6.In addition, it also increases and decreases the antioxidant glutathione Myeloperoxidase levels in the lungs, so produce protection network .
(Kpemissi et al., 2019)	<i>Combretum micranthum</i>	<i>Combretum micranthum</i> own various activity biological like antioxidant, anti- inflammatory, and anti-diabetic properties	Hyperozide, quercitrine, caf taric acid, gentisic acid, caffeic acid and chlorogenic acid	Push inflammation with hinder enhancement regulation of NF- $\kappa$ B and sEH, stress oxidative, and activation autophagy .

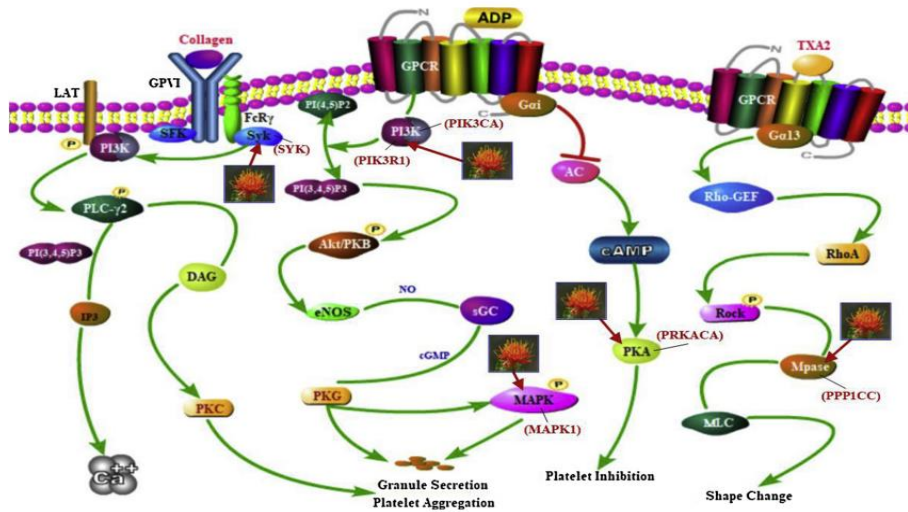




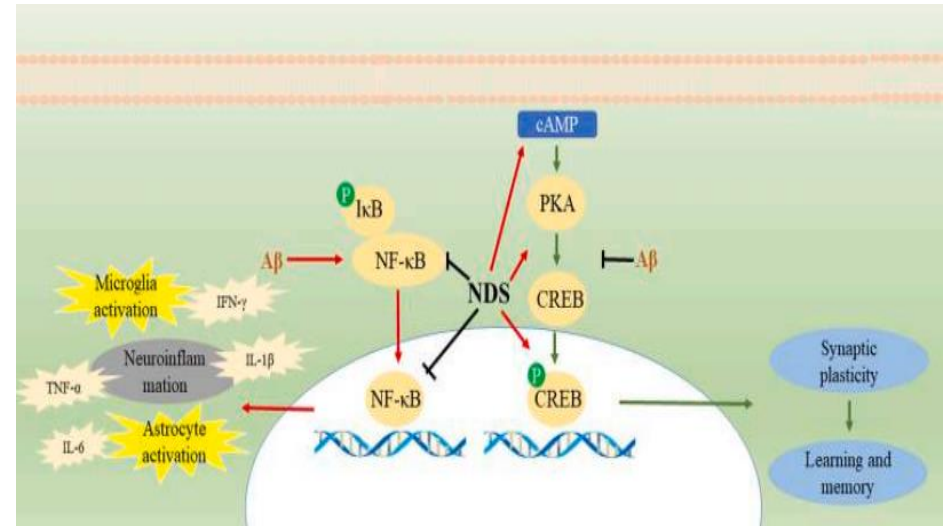
**Fig 3.** DSR mechanism in treating asthma by testing ovalbumin (OVA).OVA is able to induce asthma-like features in mice characterized by increased eosinophils and lymphocytes, accumulation of inflammatory cells in the lungs, thickening of the bronchial epithelium, mucus secretion of bronchial epithelial cells, deposition of peribronchial collagen, and activation of the pro-inflammatory oxidative/anti-oxidative balance, which is irregular. Treatment with DSR is able to improve pathological signs of asthma by attenuating pro-inflammatory genes and protein levels and can restore anti-oxidative stress capacity (Balkrishna et al., 2020).



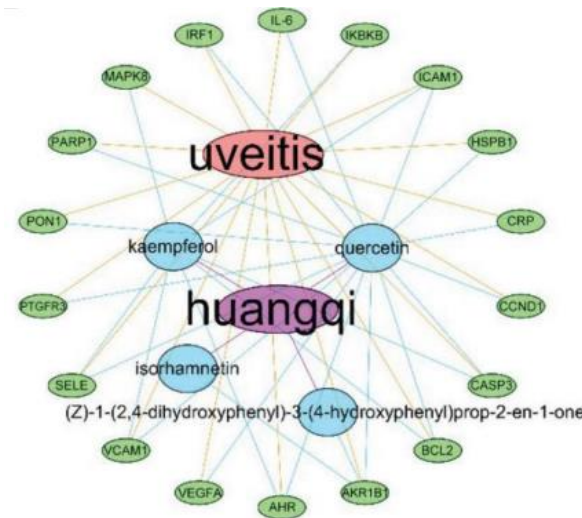
**Fig 2.** Molecular docking analysis of SARS COV-2 proteins and compounds from PDL. PDL is able to prevent the entry of SARS COV-2 by suppressing tumor necrosis factor (TNF), interferon- $\gamma$  (IFN- $\gamma$ ), interleukin-6 (IL-6), transforming growth factor- $\beta$ 1 (TGF $\beta$ 1), interleukin-10 (IL-10), and Phosphatidylinositol 3-kinase (PIK3CA) (Kong et al., 2020).



**Fig 4.** Regulation of platelet activation from *C.tinctorius* L flower treatment (Yu et al., 2019).



**Fig 5.** Mechanism of NDS treatment as a potential ingredient to treat Alzheimer's (AD) (Zhang et al., 2021).



**Fig 6.**Compound active Huangqi and uveitis drug target proteins (Lu et al., 2023)

Substance or derived adaptogens from herbal plants included from group fatty acids, sterols and phenols can give influence on the system immunity body (Liao et al., 2018) .Various mechanism or regulations implemented various component compound bioactives in traditional herbal medicines capable arrange enhancement immunity body and interfere with the process disease. Apart from ability healing from traditional herbal medicines, there are also more detrimental low side effects than use medicines chemistry. In a review of studies this, we show that lots potential herbal plants for utilized in a way massive.

## V. CONCLUSION

There is various commodity potential herbal medicine that can overcome various disease Because the effect increase response immune body and role as an anti- inflammatory. These herbal commodities among them is Divya- Swasari -Ras (DSR) potential overcome asthma; *Polygony multiflori* For handle intestinal inflammation; Bu Shen Hui Yang Fang (BSHY) for overcome cancer blood leukemia; Skin wood is listed as anti-inflammatory; Ciji- Hua'ai - Baosheng (CHBD) decoction as antitumor; Sinisan For management of chronic hepatitis; *Ganoderma lucidum* as immunostimulator; Pudilan (PDL) as anti-SARS-COV-2; *Carthamus tinctorius* L.for handling cardiovascular; *Lycium barbarum* polysaccharide (LBP) as probiotics; *Eucommia ulmoides* Oliver as material diabetes medication; Stew Gubenfangxiao (GBFXD) as drug Respiratory; Naodesheng Tablets (NDS) as drug Alzheimer's disease; *Astragalus membranaceus* (Huangqi (HQ)) for uveitis treatment; Gun-Chil-Jung Capsules (GCJ) as anti cancer; Ligusticum Chuanxiong ( *Rhizoma chuanxiong* ) and Borneol ( *Borneolum syntheticum* ) as drug atherosclerosis; *Salvia miltiorrhiza* Bge .as drug tumor at a time protector endothelium vascular; *Tetragium hemsleyanum* Diels et Gilg for handling injury lungs I; *Achyranthis bidentatae* For drug disease kidney; *Acanthus ilicifolius* L., *Phyllodium pulchellum* (L.) Desv .and *Cudrania cochinchinensis* Lour.as anti-hepatitis; Epimedium as an antitumor for melanoma, *Punica granatum* For treatment injury heart; *Sanghuangporus sanghuang* as anti-inflammatory protector network lungs; and *Combretum micranthum* as anti-inflammatory .

## REFERENCES

- [1] Balkrishna, A.*et al.*(2020) 'Biomedicine & Pharmacotherapy Calcio-herbal formulation, Divya-Swasari-Ras, alleviates chronic inflammation and suppresses airway remodeling in mouse model of allergic asthma by modulating pro-inflammatory cytokine response', *Biomedicine & Pharmacotherapy*, 126( February), p.110063.doi: 10.1016/j.biopha.2020.110063.
- [2] Bihonegn, T.*et al.*(2019) 'Antimalarial activity of hydromethanolic extract and its solvent fractions of Vernonia amygdalina leaves in mice infected with Plasmodium berghei', *SAGE Open Medicine*, 7.
- [3] Chen, G.*et al.*(2021) 'Microbiome analysis combined with targeted metabolomics reveals immunological anti-tumor activity of icariside I in a melanoma mouse model', *Biomedicine and Pharmacotherapy*, 140(January), p.111542.doi: 10.1016/j.biopha.2021.111542.
- [4] Chien, L.-H.*et al.*(2023) 'Evaluation of lung protection of Sanghuangporus sanghuang through TLR4/NF- $\kappa$ B/MAPK, keap1/Nrf2/HO-1, CaMKK/AMPK/Sirt1, and TGF- $\beta$ /SMAD3 signaling pathways mediating apoptosis and autophagy', *Biomedicine & Pharmacotherapy*, 165, p.115080.doi: 10.1016/j.biopha.2023.115080.
- [5] Chien, L.H.*et al.*(2022) 'Study on the potential of Sanghuangporus sanghuang and its components as COVID-19 spike protein receptor binding domain inhibitors', *Biomedicine and Pharmacotherapy*, 153(July), p.113434.
- [6] Forhad, M.*et al.*(2020) 'Biomedicine & Pharmacotherapy Pharmacological insights and prediction of lead bioactive isolates of Dita bark through experimental and computer-aided mechanisms', *Biomedicine & Pharmacotherapy*, 131, p.110774.doi: 10.1016/j.biopha.2020.110774.
- [7] He, X.*et al.*(2021) 'Biomedicine & Pharmacotherapy component from Polygoni multiflori Radix (Heshouwu) suppresses DSS induced acute colitis in BALb/c mice by modulating gut microbiota', *Biomedicine & Pharmacotherapy*, 137(December 2020), p.111420.doi: 10.1016/j.biopha.2021.111420.
- [8] Huang, Q.*et al.*(2021) 'Systematic investigation of the pharmacological mechanism for renal protection by the leaves of Eucommia ulmoides Oliver using UPLC-Q-TOF/MS combined with network pharmacology analysis', *Biomedicine and Pharmacotherapy*, 140(May), p.111735.doi: 10.1016/j.biopha.2021.111735.
- [9] Jun, HJ *et al.*(2020) 'The Survival Benefit of Combination Therapy With Mild Temperature Hyperthermia and an Herbal Prescription of Gun-Chil-Jung in 54 Cancer Patients Treated With Chemotherapy or Radiation Therapy: A Retrospective Study', *Integrative Cancer Therapies*, 19.doi: 10.1177/ 1534735420926583.

- [10] Kong, Q.*et al.*(2020) 'Analysis of the molecular mechanism of Pudilan (PDL) treatment for COVID-19 by network pharmacology tools', *Biomedicine and Pharmacotherapy*, 128(May).
- [11] Kpemissi, M.*et al.*(2019) 'Nephroprotective activity of Combretum micranthum G.Don in cisplatin induced nephrotoxicity in rats: In-vitro, in-vivo and in-silico experiments', *Biomedicine and Pharmacotherapy*, 116(April), p.108961.doi: 10.1016/j.biopha.2019.108961.
- [12] Lei, W.*et al.*(2019) 'Phthalides, senkyunolide A and ligustilide, show immunomodulatory effect in improving atherosclerosis, through inhibiting AP-1 and NF- $\kappa$ B expression', *Biomedicine and Pharmacotherapy*, 117(May), p.109074.doi: 10.1016/j.biopha.2019.109074.
- [13] Li, Y.*et al.*(2021) 'Probiotic fermentation of Ganoderma lucidum fruiting body extract promoted its immunostimulatory activity in mice with dexamethasone-induced immunosuppression', *Biomedicine and Pharmacotherapy*, 141(July).doi: 10.1016/j.biopha.2021.111909.
- [14] Liao, L.Y., He, Y.F., Li, L., Meng, H., Dong, Y.M., Yi, F., & Xiao, P.G.(2018).A preliminary review of studies on adaptogens: Comparison of their bioactivity in TCM with that of ginseng-like herbs used worldwide Milen Georgiev, Ruibing Wang.*Chinese Medicine (United Kingdom)*, 13 (1), 1–12.
- [15] Lu, J.*et al.*(2023) 'Network Pharmacology and Experimental Analyzes on Astragalus membranaceus (Huangqi) Effects on Endotoxin-induced Uveitis Model in Rats', *Pharmacognosy Magazine*, 19(3).
- [16] Rahayu, YYS, Araki, T., & Rosleine, D.(2020).Factors influencing the use of herbal medicines in the universal health coverage system in Indonesia.*Journal of ethnopharmacology*, 260, 112974.
- [17] Schwager, J.*et al.*(2018) 'Z-ligustilide and anti-inflammatory prostaglandins have common biological properties in macrophages and leukocytes', *Nutrition and Metabolism*, 15(1), pp.1–13.doi: 10.1186/s12986-018-0239-1.
- [18] Shu, Z.*et al.*(2018) 'Biomedicine & Pharmacotherapy Clarifying of the potential mechanism of Sinisan formula for treatment of chronic hepatitis by systems pharmacology method', 100(November 2017), pp.532–550.
- [19] Sumarni, W., Sudarmin, S., Sumarti, SS, & Kadarwati, S.(2022).Indigenous knowledge of Indonesian traditional medicines in science teaching and learning using a science–technology–engineering–mathematics (STEM) approach.*Cultural Studies of Science Education*, 1-44.
- [20] Sun, G.*et al.*(2021) 'Pharmacodynamic substances in Salvia miltiorrhiza for prevention and treatment of hyperlipidemia and coronary heart disease based on lipidomics technology and network pharmacology analysis', *Biomedicine and Pharmacotherapy*, 141.doi: 10.1016/j.biopha.2021.111846.
- [21] Wang, B.*et al.*(2022) 'Polysaccharides from Tetrastigma Hemsleyanum Diels et Gilg attenuate LPS-induced acute lung injury by modulating TLR4/COX-2/NF- $\kappa$ B signaling pathway', *Biomedicine and Pharmacotherapy*, 155(July), p.113755.doi: 10.1016/j.biopha.2022.113755.
- [22] Wang, S.*et al.*(2020) 'Raw and salt-processed Achyranthes bidentata attenuate LPS-induced acute kidney injury by inhibiting ROS and apoptosis via an estrogen-like pathway', *Biomedicine and Pharmacotherapy*, 129(March), p.110403.doi: 10.1016/j.biopha.2020.110403.
- [23] Wang, T.*et al.*(2018) 'Protective effects of Punica granatum (pomegranate) peel extract on concanavalin A-induced autoimmune hepatitis in mice', *Biomedicine and Pharmacotherapy*, 100(September 2017), pp.213–220.
- [24] Wang, Y.*et al.*(2021) 'Traditional Chinese medicine compound, Bu Sheng Hui Yang Fang, promotes the proliferation of lymphocytes in the immunosuppressed mice potentially by upregulating IL-4 signaling', *Biomedicine and Pharmacotherapy*, 134(December 2020), p.111107.doi: 10.1016/j.biopha.2020.111107.
- [25] Xi, S.*et al.*(2018) 'Biomedicine & Pharmacotherapy The effects of Ciji-Hua 'ai-Baosheng on immune function of mice with H 22 hepatocellular carcinoma receiving chemotherapy', *Biomedicine & Pharmacotherapy*, 101(4221), pp.898–909.doi: 10.1016/j.biopha.2018.03.027.
- [26] Xing, QQ *et al.*(2019) 'Serum proteomics analysis based on label-free revealed the protective effect of Chinese herbal formula Gu-Ben-Fang-Xiao', *Biomedicine and Pharmacotherapy*, 119(April), p.109390.
- [27] Yu, G.*et al.*(2019) 'Uncovering the pharmacological mechanism of Carthamus tinctorius L.on cardiovascular disease by a systems pharmacology approach', *Biomedicine and Pharmacotherapy*, 117(June), p.109094.
- [28] Zhang, B.*et al.*(2021) 'Effects of Naodesheng tablets on amyloid beta-induced dysfunction: A traditional Chinese herbal formula with novel therapeutic potential in Alzheimer's disease revealed by systems pharmacology', *Biomedicine and Pharmacotherapy*, 141.doi: 10.1016/j.biopha.2021.111916.
- [29] Zhao, Q.*et al.*(2022) 'The underlying mechanisms of anti-hepatitis B effects of Le-Cao-Shi formula and its single herbs by network pharmacology and gut microbiota analysis', *Biomedicine and Pharmacotherapy*, 148(January), p.112692.doi: 10.1016/j.biopha.2022.112692.
- [30] Zhu, W.*et al.*(2020) 'Prebiotic, immuno-stimulating and gut microbiota-modulating effects of Lycium barbarum polysaccharide', *Biomedicine and Pharmacotherapy*, 121(October 2019), p.109591.